2470 (b)

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Date of request 10/12/95 Expected receipt of document 1 MONTH

Document number KP-303 Combined Date of document 1952-1955

Title and author (if document is unnumbered)

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Date submitted to CICO 11/2/95

Date received from CICO 1/11/96

Date submitted to ChemRisk/Shonka and DOE 1/16/96

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KP 303 CO 1 A

KP 303 CO 1 A

This document consists of 135 pages, Number 1 of 1 copies, Series A.

KP-303 COMBINED

377208

DOCUMENTS INCLUDED IN KP-303 COMBINED
K-1303 MATERIAL RELEASE REPORT #81 THRU #187
(PART 1 THRU PART 104)
(BOUND INTO ONE COPY)

UNCLASSIFIED

H. G. GRISHAM

R30137

Classification changed to: UNCLASSIFIED
(level and category)
By authority of: CG-PGD-4
(classification guide)
Thomas W. Selby 7/11/94
ADC or ADD signature (first reviewer) Date
Sam W. Wohlfort 7/25/94
ADD signature (final reviewer) Date
QA 7/26/95 S. W. Nall

Classification Changed To
UNCLASSIFIED
(Insert Appropriate Classification Level and Category)

By authority of: SAM W Wohlfort 7/25/94
(Authority for Change in Classification) (Date)

By: Thomas W Selby 7/29/94
(Signature of Person Making Change) (Date)

Verified by: ~~Thomas W. Selby 7/29/94~~ Thomas J. Preston 8/8/94
(Signature of Person Verifying Change) (Date)

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This document has been approved for release to the public by:
J Preston for A S Quist 1/9/96
Technical Information Officer Date
Oak Ridge K-25 Site

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO
LOCATION Mr. J. A. Parsons
K-303-8

ATTENTION

COPY TO
Messrs. E. J. Boling K25RC
J. Dykstra
H. M. Preuss
M. F. Schwenn
H. G. P. Snyder
B. H. Thompson

DATE April 1, 1952

ANSWERING LETTER DATE

SUBJECT K-1303 Material Release Report # 81

Report No.: KP-303, Part 1

This ~~document consists of~~ / pages No. 4 of 4 ~~copies, Series A~~

U 2277

Date of Release	January 7, 1952 (12-8)
Location of Release	K-1303 Acid Loop
Balance Area Account No.	370
Material	Waste UF_6 (C-535)
Class or Assay	"A" (0.594%)
Amount of Material Involved	588.6 Liters
Equipment	Sight Gauge Glass
Source of Information	Joe Dykstra

Details: Known loss of known quantity.

On January 7, 1952, a sight gauge glass on the K-1303 acid loop was broken and the contents of the loop spilled on the ground since the valve was open. A quantity of 588.6 liters of material was in the loop before the spill. The analysis and assay of this solution was known to be 147 ppm uranium and 0.594% uranium 235. However, 50.6 liters of the material were recovered with an analysis of 97 ppm uranium. The extent of the spill was 87 grams uranium and 0.52 grams uranium 235. The recovery amounted to 5 grams uranium and 0.03 grams uranium 235. This difference of 82 grams uranium and 0 grams uranium 235 will be carried as a known loss and credited to the 370 account.

H. G. Grisham
H. G. Grisham

Approved: for H. M. Preuss

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 1, 1952

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E.J. Boling K25RC
H. M. Preuss
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SUBJECT Vault 15-A Material Release Report # 82

Report No.: KF-303, Part 2

This ~~document consists of~~ 7 pages
No. ~~4 of 6~~ copies, Series ~~A~~

U-2284

Date of Release	February, 1952
Location of Release	Vault 15-A Contaminated Storage
Balance Area Account No.	720
Material	Crude Feed
Class or Assay	Class "B" - 0.7115%
Amount of Material Involved	335.4 Liters
Equipment	Storage Drums
Source of Information	Earl Severs

Details: Known loss of known quantity.

Two storage drums, K-3595 and K-3258, in Contaminated Storage Area, Vault 15-A, developed leaks through corrosive action during February, 1952. These drums originally came from the 520 account in July, 1951, but are checked and inventoried each month. The leaks were discovered February 21, 1952. Drum K-3595 with a volume of 201.7 liters lost 97 grams uranium and 1 gram U-235. It had an analysis of 0.48 grams per liter and an assay of 0.7115%. Drum K-3258, with a volume of 133.7 liters, lost 352 grams uranium and 3 grams uranium 235. It had an analysis of 2.63 grams per liter and an assay of 0.7115%. The total release amounted to 449 grams uranium and 4 grams uranium 235. The surrounding area was decontaminated but only 49.4 liters was salvaged at an an analysis of 2.46 grams per liter and crude feed assay, resulting in a recovery of 122 grams uranium and 1 gram uranium 235. The remainder of the total release, 327 grams uranium and 3 grams uranium 235 will be carried as a known loss and credited to the 720 account.

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H. G. Grisham

H. G. Grisham

Approved: L. L. Chief

H. M. Preuss

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 1, 1952

ANSWERING LETTER DATE

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COPY TO Messrs. E. J. Boling K25RC
E. C. Johnson
H. M. Preuss
M. F. Schwenn
H. G. P. Snyder

SUBJECT K-1401 Material Release
Report # 83

Report No.: KP-303, Part 3

This document consists of / pages
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Date of Release	February 28, 1952
Location of Release	K-1401
Balance Area Account No.	870 - Barrier Research
Material	Crude Feed
Class or Assay	Class "B" - 0.711$\frac{5}{}$%
Amount of Material Involved	Small smoke quantity
Equipment	20-Stage Pilot Plant
Source of Information	W. C. Phillips and W. E. Tewes

Details: Known loss of estimated quantity

On February 28, 1952, a small material release occurred in the 20-stage pilot plant. This release resulted from a leak in the recently installed 3/8" feed line near the feed cylinder. This feed line had a silver soldered fitting which was used to tighten the plug to the charging cylinder. Evidently the copper feed line or fitting had become oxidized and due to vibration, the old expansion fitting loosened enough to permit the UF_6 to escape. The line, which was approximately five feet in length, had insulation wrapping which prevented the noticing of any fault which might have existed in the line. As soon as the release was noticed, the cylinder valve was closed to prevent a further release. Only the quantity of PG which was in the line was lost. An estimated loss of 2.49 grams uranium and 0.02 grams uranium 235, based on volume, pressure and temperature conditions, was made. This amount will be carried as a known loss and credited to the 870 account.

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for H. M. Preuss

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TO

LOCATION Mr. J. A. Parsons
K-303-8

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COPY TO

Messrs. E. J. Boling K25RC
R. H. Dyer
H. M. Preuss
M. F. Schwenn
H. G. P. Snyder

DATE

April 1, 1952

ANSWERING LETTER DATE

SUBJECT

K-413 Material Release
Report # 84

Report No.: KP-303, Part 4

This ~~document consists of~~ 7 pages
~~No. 1 of 6 copies, Series~~ A

Date of Release	January 16, 1952
Location of Release	K-413
Balance Area Account No.	150
Material	C-737
Class or Assay	Class "B" - 0.711%
Amount of Material Involved	12 pounds UF_6
Equipment	Cylinder C-466
Source of Information	Material Release Report
	John Arendt

Details: Known loss of known quantity.

On January 16, 1952, during the process of transferring the material from small "C" type cylinders to a large cylinder for sampling and feeding, a spill occurred in K-413. The operator had removed the valve safety cap, after checking the cylinder valve for closure, when the release occurred. Material had frozen beneath the valve which kept the valve from being in a completely closed position. The operator, using a mask, replaced the cap and stopped the release in approximately four minutes. A check on the weight of cylinder C-466, which caused the release, revealed a 12 pound loss. The surrounding area was decontaminated but only 16 grams uranium and 0 grams uranium 235 were recovered. The remainder 3,665 grams uranium and 26 grams uranium 235 will be carried as a known loss and credited to the 150 account.

H. G. Grisham

H. G. Grisham

Approved: for H. M. Preuss

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 1, 1952

ANSWERING LETTER DATE

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J. W. Pike
C. M. Preston
H. M. Preuss
M. F. Schwenn
S. H. Smiley
H. G. P. Snyder

SUBJECT K-1405 Material Releases Report # 85

Date of Releases	12-15-51, 2-2-52
Location of Releases	K-1405
Balance Area Account No.	520
Material	UF_6
Class or Assay	Normal Feed
Amount of Material Involved	Small unknown quantity
Equipment	Feed line and reduction tower
Source of Information	Material Release Reports

Details: Known losses of unknown quantities.

On December 15, 1951, a minor UF_6 release occurred in K-1405 due to a flange leak on the inlet feed line. On February 2, 1952, another minor release occurred in the K-1405 building, when a small quantity of UF_6 escaped from the top of the Y. R. tower while the head was off. The exact quantity of material lost could not be determined but it is known that each of these releases were of a minor nature. This report is written mainly as a matter of record.

H. G. Grisham

H. G. Grisham

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J. A. Martin
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C. M. Preston
H. M. Preuss
M. F. Schwenn
S. H. Smiley
H. G. P. Snyder

DATE
April 1, 1952

ANSWERING LETTER DATE

SUBJECT
K-1413 Material Release
Report # 86

Report No.: KP-303, Part 5

This document consists of 1 pages
No. 5 of 10 copies, Series A

Date of Release	February 1, 1952
Location of Release	K-1413
Balance Area Account No.	520
Material	Crude Feed
Class or Assay	Class "B" - 0.7115%
Amount of Material Involved	0.5 Pounds UF_6
Equipment	Barrier Receiver
Source of Information	Material Release Report

Details: Known loss of estimated quantity.

On February 1, 1952, while removing a barrier receiver in the new laboratory building, K-1413, the receiver was accidentally dropped. When atmosphere entered the system, a small quantity of UF_6 escaped into the room. It was estimated that 0.5 lbs. of UF_6 was lost. This amount of 153 grams uranium and 1 gram uranium 235 will be shown as a known loss and credited to the 520 account.

H. G. Grisham
H. G. Grisham

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for H. M. Preuss

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TO Mr. J. A. Parsons
LOCATION K-303-8

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H. M. Preuss
M. F. Schwenn
H. G. P. Snyder

DATE April 2, 1952

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SUBJECT K-631 Material Release
Report # 87

Report No.: KP-303, Part 6

This [illegible] / pages
No. 4 of 6 copies, Series A

Date of Release	January 3, 1952
Location of Release	K-631 Shipping Room
Balance Area Account No.	120
Material	C-635
Class or Assay	Class "A"
Amount of Material Involved	5 Pounds UF_6
Equipment	J-633H Pump
Source of Information	Material Release Report

Details: Known loss of estimated quantity.

On January 3, 1952, in the shipping room of K-631, a material release occurred as a result of the plugging of a pump drain line. The maintenance man was in the process of draining oil from the J-633H pump when the valve became plugged. He broke the plug loose and an estimated 5 pounds of P.G. escaped into the room. The surrounding area was decontaminated, resulting in a recovery of 369 grams uranium and 2 grams uranium 235. The remaining portion of the release, 1,165 grams uranium and 8 grams uranium 235, will be shown as a known loss and credited to the 120 account.

W. G. Grisham
H. G. Grisham

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for H. M. Preuss

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE May 2, 1952

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E. J. Boling K25RC
W. D. McCluen
M. F. Schwenn
H. G. P. Snyder

SUBJECT Vault 15-A Material Release Report # 88

Report No.: KP-303, Part 7

Date of Release	February, 1952
Location of Release	Vault 15-A, Contaminated Storage
Balance Area Account No.	720
Material	Crude Feed
Class or Assay	Class "B" - 0.7115%
Amount of Material Involved	205.6 Liters
Equipment	Storage Drum
Source of Information	Earl Severs

Details: Known loss of known quantity.

A storage drum, K-3234, in Contaminated Storage area, Vault 15-A, developed a leak through corrosive action during February, 1952. This drum came from the 520 Account and was originally stored in July, 1951. The leak was discovered February 13, 1952, and the surrounding area decontaminated. The drum, when stored, contained 205.6 liters at an analysis of 2.86 grams per liter or 588 grams uranium and 4 grams uranium 235. Through decontamination, 82.3 liters or 235 grams uranium and 2 grams uranium 235 was recovered. The difference between the total release and the recovery of 353 grams uranium and 2 grams uranium 235 will be shown as a known loss and credited to the 720 Account.

H. G. Grisham

Approved:

S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE May 2, 1952

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H. G. P. Snyder

SUBJECT Vault 15-A Material Release Report # 88

Report No.: KP-303, Part 7

This document consists of 1 pages
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Date of Release	February, 1952
Location of Release	Vault 15-A, Contaminated Storage
Balance Area Account No.	720
Material	Crude Feed
Class or Assay	Class "B" - 0.7115%
Amount of Material Involved	205.6 Liters
Equipment	Storage Drum
Source of Information	Earl Severs

Details: Known loss of known quantity.

A storage drum, K-3234, in Contaminated Storage area, Vault 15-A, developed a leak through corrosive action during February, 1952. This drum came from the 520 Account and was originally stored in July, 1951. The leak was discovered February 13, 1952, and the surrounding area decontaminated. The drum, when stored, contained 205.6 liters at an analysis of 2.86 grams per liter or 588 grams uranium and 4 grams uranium 235. Through decontamination, 82.3 liters or 235 grams uranium and 2 grams uranium 235 was recovered. The difference between the total release and the recovery of 353 grams uranium and 2 grams uranium 235 will be shown as a known loss and credited to the 720 Account.

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H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons DATE May 2, 1952
LOCATION K-303-8

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H. G. P. Snyder

SUBJECT Vault 15-A Material Release Report # 89

Report No.: KP-303, Part 8

This document consists of 1 pages
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Date of Release	March 24, 1952
Location of Release	Vault 15-A, Contaminated Storage
Balance Area Account No.	720
Material	C-635
Class or Assay	Class "A"
Amount of Material Involved	248.5 liters
Equipment	Storage Drums
Source of Information	Earl Severs

Details: Known loss of known quantity.

Three storage drums, 5394, 5395, and 5396, stored in Vault 15-A, a contaminated waste storage area, developed leaks on March 24, 1952. These drums had been stored at K-1410, Account 360, for several months and were in a badly corroded condition when accepted at Vault 15-A on March 7, 1952. These drums contained a total of 248.5 liters of material and, from previous analyses and calculations, were known to have 25 grams uranium and 0 grams uranium 235. When the leak was discovered on March 24, 1952, the immediate area was decontaminated with a recovery of 7 grams uranium and 0 grams uranium 235. The difference of 18 grams uranium and 0 grams uranium 235 will be carried as a known loss and credited to the 720 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE May 2, 1952

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D. C. Brater
J. A. Martin
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R. G. Nicol
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SUBJECT K-1401 Material Release Report # 90

Report No.: KP-303, Part 9

This document consists of 2 pages
No. 1 of 8 copies, Series A

Date of Release	January, February, and March, 1952
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"A" and "B"
Amount of Material Involved	8,586 grams Uranium
Equipment	Converters
Source of Information	R.G. Nicol

Details: Known loss of estimated quantity.

During the months of January, February, and March, 1952, four K-27 converters, two K-29 converters and forty-seven converters from K-31 were removed with ruptured tubes and sent to K-1401 for decontamination before being retubed.

These converters were fluorinated at a temperature of 350°F in the furnace stands for a period of two to three hours and the recovered UF_6 vented to the atmosphere. No data was kept on first forty-four of these converters which were fluorinated, and hence it is not known how much UF_6 actually was lost. However, pressure and temperature data and bulb samples were taken on the last nine converters so treated. From this information, the actual UF_6 lost for each of the nine converters was calculated. The UF_6 loss ranged from a low of 65 grams to a high of 241 grams and an average of 162 grams per converter. For lack of a better basis for determining the UF_6 loss for the other forty-four converters, this average of 162 grams per converter was used. Uranium 235 assays for the material recovered from each converter were determined from the gradients covering the period of time of which these converters were in service. The assays

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for this material ranged from 0.500% to 2.000% . Using the above as a basis, a loss of 8,586 grams uranium and 67 grams uranium 235 determined for the fifty-three converters which were treated during the first quarter of 1952.

The above quantity of material will be carried as a known loss and credited to the 200 account since this material originally came from the cascade without a paper transfer of material to the K-1401 Account.

H. G. Grisham

H. G. Grisham

Approved: S. S. Stief

S. S. Stief

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE May 1, 1952

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ATTENTION

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W. D. McCluen
M. F. Schwenn
G. T. E. Sheldon
H. G. P. Snyder

SUBJECT K-306-7 Material Release Report # 91

Report No.: KP-303, Part 10

This document consists of / pages
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Date of Release	March 1 and 3, 1952
Location of Release	K-306-7 Field Laboratory
Balance Area Account No.	250
Material	C-535
Class or Assay	Class "A"
Amount of Material Involved	Approximately 10 grams Uranium
Equipment	B-4 Pump
Source of Information	Material Release Report G. T. E. Sheldon

Details: Known loss of estimated quantity.

On March 1, 1952, the bellows broke on the B-4 pump on the waste feed sample line and a small quantity of UF_6 was released to the atmosphere through the oil line and pump housing for a period of approximately fifteen minutes. It is estimated that approximately 10 grams of uranium was lost. The area was decontaminated with an acid solution and a recovery of 2 grams uranium was made. This recovery had an analysis of 0.46 gU/l and 0.507% uranium 235.

On March 3, 1952, the above line was the source of another very small release which resulted when maintenance personnel were replacing a calrod around the B-4 pump and a plug in the cut line was knocked out. This release was very minor and was not sufficient to necessitate the surrounding area being decontaminated.

The known loss of 8 grams uranium and 0 grams uranium 235 will be carried as such and credited to the 250 account.

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H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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SECURITY INFORMATION

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE June 18, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Messrs. J. W. Arendt
E. J. Boling K-25RC
W. D. McCluen
M. F. Schwenn
H. G. P. Snyder

SUBJECT Vault 15-A Material Release Report # 92

Report No.: KP-303, Part 11

This document consists of 1 pages
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Date of Release	May 4, 1952
Location of Release	Vault 15-A, Cont. Storage
Balance Area Account No.	720
Material	C-935
Class or Assay	Class "B"
Amount of Material Involved	98.3 liters
Equipment	Storage Drum # 5417
Source of Information	W. R. Grubb and Earl Severs

Details: Known loss of known quantity.

On May 4, 1952, a leak was discovered in Storage Drum # 5417. This drum originally contained 98.3 liters of ammonia filtrate solution which had been recovered from a spill in Vault 15-A on March 24, 1952. Through decontamination, 86.70 liters was recovered from this release. The difference between the original contents, 7 grams uranium and 0 grams U-235, and the recovery of 6 grams uranium and 0 grams U-235, will be carried as a known loss. This known loss of 1 gram uranium will be credited to the 720 account.

H. G. Grisham
H. G. Grisham

Approved: W. D. McCluen
for S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE June 19, 1952

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H. G. P. Snyder

SUBJECT Vault 15-A Material Release Report # 93

Report No.: KP-303, Part 12

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Date of Release	May 5, 1952
Location of Release	Vault 15-A, Cont. Storage
Balance Area Account No.	720
Material	C-935
Class or Assay	Class "B"
Amount of Material Involved	385.75 pounds
Equipment	Storage Drum # 5310
Source of Information	W. R. Grubb and Earl Severs

Details: Known loss of known quantity.

In February, 1952, the process laboratory reclaimed 385.75 pounds of a mixture of acetone, Hydrocarbon oil, and Varsol from K-413 in storage drum # 5310 and sent it to Vault 15-A for storage. Due to corrosive action, a leak developed in this drum on May 5, 1952. The surrounding area was decontaminated and 108.0 pounds of material recovered. The drum originally contained 9 grams uranium and 0 grams U-235 and a recovery of 3 grams uranium and 0 grams U-235 was effected. This difference of 6 grams uranium will be shown as a known loss and credited to the 720 account.

H. G. Grisham

H. G. Grisham

Approved: W. D. McCluen
for S. S. Stief

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INTER-COMPANY CORRESPONDENCE

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE June 24, 1952

ANSWERING LETTER DATE

ATTENTION
COPY TO Messrs. E. J. Boling K-25RC
W. D. McCluen
H. M. Preuss
M. F. Schwenn ✓
H. G. P. Snyder

SUBJECT K-309-3 Test Loop Material Release Report # 94

Date of Release	April 10, 1952
Location of Release	K-309-3 Test Loop
Balance Area Account No.	220
Material	C-1035
Class or Assay	Class "C"
Amount of Material Involved	Small, unknown quantity
Equipment	C-216 Charging Line
Source of Information	Material Release Report

Details: Known loss of unknown quantity.

On April 10, 1952, while pressure testing the hose on the C-216 charging line, the hose became disconnected and a small amount of P.G. was released over a period of a few seconds. Due to the nature of the release and the short time involved, it is known that the release was minor but not readily determinable. This report is written merely as a matter of record.

RECEIVED JUN 24 1952 M. F. SCHWENN

H. G. Grisham
H. G. Grisham

Approved: J. D. McCluen for S. S. Stief

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WCX-80 (6-51)

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE June 20, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Messrs. E. J. Boling K-25RC
H. J. Culbert
W. D. McCluen
J. A. Marshall
B. H. Thompson

SUBJECT Process Laboratory Material Release Report # 95

Report No.: KP-303, Part 13

THIS DOCUMENT CONSISTS OF 1 PAGES
No. 1 OF 6 COPIES, SERIES A

Date of Release	June 11, 1952
Location of Release	K-303-6 Process Laboratory
Balance Area Account No.	630
Material	C-935
Class or Assay	Class "B", 1.149%
Amount of Material Involved	0.25 liter
Equipment	Sample tube
Source of Information	H. J. Culbert

Details: Known loss of known quantity.

On June 11, 1952, a process laboratory employee knocked over a 0.25 liter sample tube of ammonium hydroxide solution which had been sampled from the "B" tower in K-1410. This accident resulted in a loss of 0.20 liters of material with an analysis of 9.23 g/l and an assay of 1.149%. This spill of 2 grams uranium and 0 grams U-235 will be carried as a known loss and credited to the 630 account.

H. G. Grisham

Approved: W. D. McCluen for S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE June 24, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Messrs. J. C. Barton
E. J. Boling K25RC
F. W. Hurd
W. D. McCluen
M. F. Schwenn
H. G. P. Snyder
R. J. Wertz

SUBJECT K-1004-A Material Release Report No. 96

KP-303, Part 14

Date of Release	April 1, 1952
Location of Release	K-1004-A, Room 19
Balance Area Account No.	810
Material	C-435
Class or Assay	Class "A", 0.448%
Amount of Material Involved	2,559 Grams Uranium
Equipment	Cylinder H-115
Source of Information	R. J. Wertz

Details: Known loss of known quantity.

On April 1, 1952, a Works Laboratory employee was attempting to transfer some material from cylinder No. H-115 when the cylinder became too hot, ruptured and released 2,559 grams uranium, the original contents of the cylinder. This sample cylinder had been received from K-631 and contained more than the quantity of uranium normally allowed for the cylinder volume, hence necessitating the transfer of material out of this cylinder. After the spill, the surrounding area was thoroughly decontaminated and a recovery of 1,451 grams uranium was effected. The difference, between the original contents of the cylinder and the recovery, of 1,108 grams uranium will be shown as a known loss. This material was tails material at an assay of 0.448%. The known loss of 1,108 grams uranium and 5 grams U^{235} will be credited to the Works Laboratory account No. 810.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

INTER-COMPANY CORRESPONDENCE

(NAVY) COMPANY [redacted] LOCATION Post Office Box P, OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

August 4, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Messrs. J. W. Arendt
E. J. Boling K25RC
W. D. McCluen
M. F. Schwenn
H. G. P. Snyder

SUBJECT Vault 15-A Material Release
Report # 97

KP-303, Part 15

This document consists of 1 pages,
No. 1 of 6 copies, Series A.

Date of Release	June 8, 1952
Location of Release	Vault 15-A, Cont. Storage
Balance Area Account No.	720
Material	C-535
Class or Assay	Class "A", 0.576%
Amount of Material Involved	206.80 liters
Equipment	Storage Drum # 5539
Source of Information	Earl Severs and W. R. Grubb

Details: Known loss of known quantity.

On May 27, 1952, storage drum # 5539, containing 206.80 liters of Carbitol from the No. 1 separator in K-1303, was transferred from K-1303 to Vault 15-A. On June 8, 1952, due to a failure in the polyethylene liner of the drum resulting from corrosive action, a leak occurred which resulted in a loss of 65.6 liters. No recovery was made. The sample results on the original contents of this drum were 8.57 g/l at an assay of 0.576%. Using these results, a loss of 562 grams uranium and 3 grams uranium 235 was calculated. This known loss will be credited to the 720 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE August 1, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Messrs. E. J. Boling K-25RC
D. C. Brater
J. A. Martin
W. D. McCluen
R. G. Nicol
M. F. Schwenn
H. G. P. Snyder

SUBJECT K-1401 Material Release Report # 98

KP-303, Part 16

This document consists of 1 pages, No. 1 of 8 copies, Series A.

Date of Release	April, May, June, 1952
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"A" and "B"
Amount of Material Involved	2,705 grams Uranium
Equipment	Converters
Source of Information	R. G. Nicol

Details: Known loss of known quantity.

During the months of April, May, and June, 1952, twelve converters from K-31 were removed with ruptured tubes and sent to K-1401 for decontamination before being retubed. These converters were fluorinated at a high temperature in the furnace stands for a period of a couple hours and the recovered UF_6 vented to the atmosphere. Pressure and temperature data and bulb samples were taken for each of these converters and the UF_6 loss calculated. The UF_6 loss ranged from 27 grams in one converter to a high of 548 grams in another, with the total loss for the twelve converters being 2,705 grams. The assays for the material lost were determined from the assay gradient on a per converter basis. The uranium 235 loss amounted to 19 grams.

Other converters were fluorinated during the quarter but, due to a lack of sample results, cannot be reported at this time. This loss will be reported later when the sample results become available.

The known loss of 2,705 grams uranium and 19 grams uranium 235 will be credited to the cascade 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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(Name of Sender) COMPANY _____ LOCATION Post Office Box P, OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE August 4, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Messrs. J. C. Barton
E. J. Boling K25RC
F. W. Hurd
W. D. McCluen
M. F. Schwenn
H. C. P. Snyder
R. J. Wertz

SUBJECT K-1004-D Material Release
Report No. 99

KP-303, Part 17

This document consists of 1 pages,
No. 1 of 8 copies, Series A.

Date of Release	June, 1952
Location of Release	K-1004-D
Balance Area Account No.	810
Material	C-935
Class or Assay	Class "B"
Amount of Material Involved	564 grams Uranium
Equipment	Barrel of Waste Solution
Source of Information	R. J. Wertz

Details: Known loss of known quantity.

A barrel of waste solution material, which was stored outside at the rear of K-1004-D, developed a leak sometime during the month of June, 1952, and released the entire contents of the barrel. This material had been inventoried at the end of May, 1952, and contained 564 grams uranium and 6 grams uranium 235. When it was again inventoried at the end of June, 1952, the leak was discovered. No decontamination was effected since the release had occurred several days earlier and all the solution had been absorbed in the earth. This quantity of material will be carried as a known loss and credited to the 810 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(SECRET AEC) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE August 1, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Messrs. E. J. Boling K25RC
W. D. McCluen
M. F. Schwenn
G. T. E. Sheldon
H. G. P. Snyder

SUBJECT K-306-7 Material Release Report # 100

KP-303, Part 18

This document consists of 1 pages, No. 5 of 6 copies, Series A.

Date of Release	June 23, 1952
Location of Release	K-306-7
Balance Area Account No.	250
Material	C-2935
Class or Assay	G
Amount of Material Involved	Estimated 10 grams Uranium
Equipment	Product Cylinder # 349
Source of Information	E. C. Kent

Details: Known loss of estimated quantity.

On June 23, 1952, a leak developed at the plug on the cylinder head of product cylinder # 349 which was in the # 3 cubicle in the SS Area of K-306-7. As soon as possible after the cubicle alarm sounded, CO_2 was opened, the cubicle frozen down and the cylinder removed to storage. The release occurred for a period of approximately five minutes. After thoroughly examining the release area, supervisory personnel estimated the release at a maximum of 10 grams uranium and 9 grams uranium 235. This material will be carried as a known loss and credited to the 250 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG/mef

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

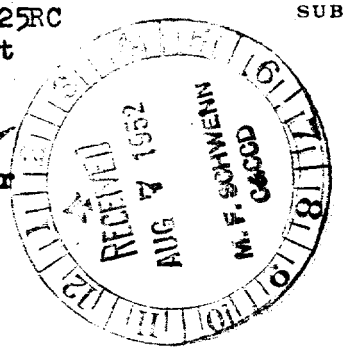
DATE August 1, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Messrs. E. J. Boling K25RC
K. W. Bondurant
J. C. Elrod
W. D. McCluen
M. F. Schwenn
H. G. P. Snyder

SUBJECT K-703 Material Release
Report # 101



Date of Release	May 23, 1952
Location of Release	K-703, Rm. 20
Balance Area Account No.	645
Material	Uranyl Zinc Acetate Solution
Class or Assay	Class "B"
Amount of Material Involved	77 grams
Equipment	Beaker of solution
Source of Information	J. C. Elrod

Details: Known loss of unknown quantity.

On May 23, 1952, a beaker, containing 77 grams of uranyl zinc acetate solution, cracked while it was being heated on a hot plate in the K-703 laboratory with the total contents being released. The area was decontaminated with only a small recovery being effected. The extent of the loss is not known since this solution had never been sampled. However, it is felt that this loss is very minor. This report is written mainly as a matter of record.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG/mef

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COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

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Mr. J. A. Parsons
K-303-8

August 5, 1952

Messrs. E. J. Boling K25RC
D. C. Brater
J. A. Martin
W. D. McCluen
C. M. Preston
M. F. Schwenn
S. H. Smiley
H. G. P. Snyder

SUBJECT: K-1401 Material Release Report # 102

KP-303, Part 19

This document consists of 1 pages, No. 1 of 9 copies, Series A.

Date of Release	May 27, 1952
Location of Release	K-1401 Basement
Balance Area Account No.	500
Material	Normal Feed
Class or Assay	Class "B" - 0.7115%
Amount of Material Involved	25 pounds
Equipment	Stokes Pump, A-19-Q
Source of Information	J. A. Martin

Details: Known loss of estimated quantity.

On May 27, 1952, a Stokes pump, A-19-Q in K-1401, became plugged with normal assay material. The pump flutter valve stuck, thus making it impossible to obtain an effective purge. Therefore, it was necessary to disassemble the pump and, in the operation, a mixture of MFL oil and UF_6 flowed out upon the floor. This release occurred over a period of three hours and affected an area of approximately 400 $ft.^2$ around the pump. It was estimated that 25 pounds of material was lost. The surrounding area was decontaminated with a recovery of 43.80 liters. The recovery was sampled and analyzed with a result of 15.0 g/l. The original release was estimated at 7,668 grams uranium and 55 grams uranium 235. Of this quantity, 657 grams uranium and 5 grams uranium 235 were recovered. The difference of 7,011 grams uranium and 50 grams uranium 235 will be shown as a known loss and credited to the 500 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG/mf

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INTER-COMPANY CORRESPONDENCE

COMPANY [redacted] LOCATION Post Office Box P OAK RIDGE, TENN.

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Mr. J. A. Parsons
K-303-8

DATE August 4, 1952

ANSWERING LETTER DATE

Messrs. E. J. Boling K25RC
R. H. Dyer
W. D. McCluen
M. F. Schwenn
H. G. P. Snyder

SUBJECT K-631 Material Release
Report # 103

KP-303, Part 20

This document consists of 1 pages,
No. 1 of 6 copies, Series A.

Date of Release	May 19, 1952
Location of Release	K-631
Balance Area Account No.	210
Material	C-435
Class or Assay	Class "A"
Amount of Material Involved	5 pounds UF_6
Equipment	Waste Cylinder
Source of Information	A. N. Smith

Details: Known loss of estimated quantity.

On May 19, 1952, a faulty gasket on the condenser side of a ten ton waste cylinder resulted in a material release for a period of approximately three minutes. The condenser was valved off, and the leak repaired. It was estimated that five pounds of material was lost. This quantity of 1,534 grams uranium and 74 grams uranium 235 will be carried as a known loss and credited to the 210 account.

H. G. Grisham

Approved: S. S. Stief

[redacted]
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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY [redacted] LOCATION Post Office Box P OAK RIDGE, TENN.

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TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling - K-25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

DATE September 5, 1952

ANSWERING LETTER DATE

SUBJECT Vault 16-A Material Release Report # 104

KP-303, Part 21

This document consists of 2 pages
No. 1 of 6 copies, Series A.

Date of Release	July 18, 1952
Location of Release	Vault 16-A
Balance Area Account No.	720
Material	C-635
Class or Assay	Class "A"
Amount of Material Involved	211.84 liters
Equipment	Drum # 5253
Source of Information	W. R. Grubb

Details: Known loss of known quantity.

On July 18, 1952, a leak was discovered in drum # 5253 which contained 211.84 liters of laboratory waste solution material. This leak developed from the reaction between the acid solution and the stainless steel drum which resulted in the bottom of the drum being eaten out and a release of the entire contents. The area was decontaminated and a recovery of 74.10 liters was made. The drum originally contained 2,775 grams uranium and 19 grams uranium 235 with 1,815 grams uranium and 12 grams uranium 235 being recovered through decontamination. The difference of 960 grams uranium and 7 grams uranium 235 will be carried as a known loss and credited to the 720 account.

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H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

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TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling - K-25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

DATE September 5, 1952

ANSWERING LETTER DATE

SUBJECT Vault 16-A Material Release Report # 105

KP-303, Part 22

~~This document consists of 1 pages~~
~~No. 1 of 6 copies, Series A.~~

Date of Release	June 11, 1952
Location of Release	Vault 16-A, Cont. Storage
Balance Area Account No.	720
Material	C-935
Class or Assay	Class "B", 1.314%
Amount of Material Involved	77.7 liters
Equipment	Storage Drum # 5248
Source of Information	Earl Severs & W. R. Grubb

Details: Known loss of known quantity.

On June 11, 1952, storage drum # 5248, which contained 77.7 liters of ammonium filtrate solution, ruptured due to corrosive action and released the contents of the drum. This drum of material had been received from the 360 account in K-1410 and been in storage in Vault 16-A since December 21, 1951. It contained 36 grams uranium and less than one-half gram uranium 235. Through decontamination, a recovery of 35 grams uranium was effected. This known loss of one gram uranium will be credited to the 720 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG/mf

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

SECURITY INFORMATION

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE October 8, 1952

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling (K-25RC)
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. R. N. Rice
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson
Mr. A. Varlan

SUBJECT K-1131 Material Release Report # 106

KP-303, Part 23

This document consists of 1 pages
No. 5 of 9 copies, Series A.

Date of Release	September 19, 1952
Location of Release	K-1131
Balance Area Account No.	550
Material	C-736
Class or Assay	Class "B", 0.7115%
Amount of Material Involved	1000 pounds UF_6
Equipment Involved	Cold Trap
Source of Information	Material Release Report R. N. Rice

Details: Known loss of estimated quantity.

Due to the fact that the HF absorbers have not functioned as effectively as had been expected in the K-1131 UF_6 feed production system, the secondary cold traps in the system, in which the HF is trapped out, recently became overloaded with HF. On September 19, 1952, while these cold traps were being heated in order to liquefy the solidified UF_6 so that it might be drained from the traps, a very high pressure built up within these traps due to the excessive amount of HF within the system. In order to prevent an explosion which seemed imminent, the gaseous UF_6 and HF mixture was vented out the stack to the atmosphere over a period of 10 hours on the above mentioned date. The amount of UF_6 thus lost by venting was estimated at 1000 pounds based on the length of time the traps had been in service and the total amount of material which had been drained prior to the venting. This estimated loss of 306,718 grams uranium and 2,182 grams uranium 235 will be carried as a known loss and credited to the 550 account.

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H. G. Grisham
H. G. Grisham

Approved: S. S. Stiefel
S. S. Stiefel

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SECURITY INFORMATION

CARBIDE AND CARBON CHEMICALS COMPANY
K-25 Plant

Oak Ridge, Tennessee
October 13, 1952

To: Mr. K. W. Bahler
Mr. E. C. Bollinger
Mr. Sylvan Cromer
Mr. G. H. Dykes
Mr. A. P. Huber
Mr. W. B. Humes
Dr. F. W. Hurd
Mr. J. A. Marshall
Mr. E. A. Pluhar
Mr. D. H. Rader
Mr. W. L. Richardson
Mr. M. F. Schwenn

From: Safety and Protection Division

Subject: Report of Material Release

Date of Incident: October 6, 1952
Nature of Incident: Ruptured Cold Trap
Location K-1131 Feed Plant

During the normal heating of a Size 1, Kellex-Type Cold Trap in the K-1131 Feed Plant for the purpose of vaporizing UF_6 to be used as plant feed, a small rupture of the outer wall of the trap occurred, resulting in the release of approximately 50 lb. of gaseous UF_6 to the atmosphere. The trap was immediately vented to the recycle system, the calrod heaters shut off, and the trap CO_2 cooling system was activated to freeze the material remaining in the trap. The release stopped in less than a half-hour, but final settling of the material released required an additional half-hour. As a result of the increased pressures in one of the recycle pumps, a gasket was forced out and a fire started by the reaction of the hydrocarbon pump oil with a small amount of fluorine in the system. The fire was brought under control by use of CO_2 extinguishers by the time the principal hazard due to the material release had ceased.

FINDINGS

1. The operations at the time of the release were as follows:

   (a) Normal operation requires alternate heating of the trap and the draining of the liquid UF_6. The trap had been partially drained during the preceding shift, and the drain procedure was continuing with the trap being heated at the time of the release.
   (b) The trap was being operated under usual conditions at a skin temperature of approximately 275°F. and a pressure of 45 lb. psig. as shown by trap instrumentation.
   (c) C. E. Hood, 19499, a cold trap operator, was at the control station preparing to connect another filled trap to the feed line. When he saw that material was escaping from the ruptured unit, he disconnected the heaters, vented the trap to the recycle system, valved in the CO_2 cooling system, and evacuated.

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(d) The evacuation alarm was sounded from the control room and employees were immediately evacuated from the building.

2. The abrupt release of the gaseous contents of the trap to the recycle line forced out a gasket and seal of one of the recycle pumps, permitting the hydrocarbon oil used for lubrication to come in contact with the small amount of fluorine which is normally in the recycle system. The resultant reaction produced a fire which burned off the insulation of the pump control wiring and damaged other parts of the pump. The Fire Department was called to deliver additional large CO_2 fire extinguishers to this location and to give standby assistance while the fire was extinguished by the operators using CO_2.

3. The following information concerning the present use of the cold trap is considered significant:

(a) This trap was one of those which was originally designed to be used for cascade purging operations which would have involved only slow accumulations of material as a result of process difficulties and slow release to the cascade later. Thus, they were designed for an operating temperature of 160°F. (176°F. skin temperature) and a 40 psig. operating pressure.

(b) The original "triple-pass" design of the cold trap called for heating units inside the trap as shown on the diagram of the cross section of the trap. However, the original vendor of these heating units has encountered difficulty in meeting the specifications so, despite the fact that such units have been on order since November 1951, none have been delivered. As a result of the recent increased use of these heaters caused by their usage in phase II of Feed Plant operations, the plant reserve has been exhausted and in September 1952 it became necessary to devise a substitute heating method which involved doubling the number of heating units placed outside the trap.

(c) On September 5, 1952, before installation, the trap was given the specified pressure test, which included a 60 psig. air test of the shell which failed.

4. The present heating cycle requires approximately 4 to 5 hours to remove all of the contents of a filled trap. Under normal operation, a trap will receive the manufactured feed until it plugs, at which time it will contain approximately 1200 lb. of UF_6. It is then heated with resultant liquefaction of the UF_6, and drained.

5. Comments concerning available relief devices are as follows:

(a) As installed, the trap has a relief valve and a safety diaphragm connected in series in a line between the trap and a surge drum. However, the safety diaphragm had previously failed, indicating a previous pressure difference between the trap and the tank greater than about 45 psig., and both the relief valve and the diaphragm had been valved out; the same condition was true of several other of the traps in the building.

(b) The safety diaphragms on the surge tank were designed for a maximum pressure of 50 psig. with respect to the atmosphere. Thus, if the pressure in the tank were 10 psig. above atmosphere, a pressure in the trap of 55 psig. would be needed to rupture a safety diaphragm set for 45 psig.

(c) Overpressure alarms were available. However, due to frequent operation above the alarm pressure of 40 psig., these were disconnected from all traps.

6. Any HF which may have been in the trap was not considered to have been a causative factor in this rupture.

7. The rupture consisted of a 1-1/2" long longitudinal crack under one of the clips holding one of the original calrod heating units close to the trap surface. Although the original specification had required a thermal insulator between the calrod unit and the clip, such insulation had not been applied in this case. Also, the clip was designed to hold the heater approximately 9/16" from the trap surface, but inspection at the time of discovery of the crack indicated that in some way it had been so pinched that the calrod was in contact with the trap shell. The description of the calrod units included a surface temperature specification of about 500°F.

8. No deformation was noted at the site of the rupture of the trap shell.

9. It appeared to the committee that this material release resulted primarily from metal failure caused by continued operation under conditions of temperature and pressure exceeding design specifications, and that the immediate cause of the rupture was the strain caused by highly localized heating at one point due to the uninsulated heater in contact with the trap shell. It was not possible to establish immediately whether the break was primarily due to stress rupture resulting from a highly localized increased pressure in this area due to the expansion of a small volume of material as it was liquefied; to metal fatigue produced by the high temperature and cooling cycles; or to stress corrosion accentuated by the above factors. It was planned, however, to make analytical determinations of these factors when the trap was completely evacuated.

10. The first air samples of the release were taken at about 2:15 a.m. and periodically from that time until about 10:30 a.m. The air was found to be below the P.A.L. in the plant control room, slightly above the P.A.L. on the mezzanine floor where the pump which failed was located, and well above the P.A.L. in the cold trap room. Most of the employees working in the cold trap room or on the mezzanine wore protective equipment.

11. Clean-up operations began about 1:15 a.m. and continued until after 8:00 a.m. by which time only the mezzanine was significantly above its normal contamination level.

12. Fourteen employees involved in the release were sent to the dispensary for supervisory checks, but no clinical evidence of injury due to this incident was observed.

13. The material remaining in the cold trap was removed over the next few days after the incident.

RESPONSIBILITY

The investigating committee consisting of B. H. Thompson of the Chemical Division, W. J. Hamer of the Engineering Division, and G. S. Storer and H. F. Henry of the Safety and Protection Division assigned the following responsibility for the release:

50% 5-4 In that the equipment was operated under more stringent conditions than those for which it was designed, and available safety devices were not used.

50% 2-1 In that the equipment was approved for use in an operation where the requirements considerably exceeded specifications.

RECOMMENDATIONS

1. New traps capable of meeting the requirements of this operation should be designed and procured.

2. A method for maintaining a more uniform pressure in the surge tank should be devised and provisions should be made to prevent an excessive amount of material from being accumulated in it except for emergency operations.

3. Design specifications should be met during all maintenance operations.

4. Where possible, the remaining similar traps should be checked to determine if strains indicating incipient metal failure have been set up, and if so, appropriate action should be taken.

5. Excessive pressures in the cold traps should be controlled by the use of safety diaphragms and more frequent maintenance of relief valves.

6. Until new traps become available, the time cycle involved in feeding the contents of a trap to the cascade should be increased by reducing the rate of heat input.

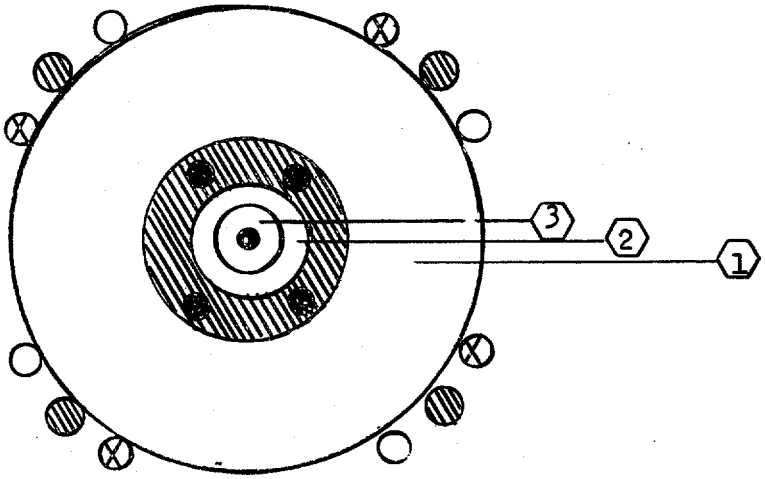
Hugh F. Henry

H. F. Henry
Safety and Radiation Hazards

HFH:lja

cc: Mr. W. J. Hamer
Mr. B. H. Thompson
Mr. G. S. Storer
Safety Department File - K25RC

CROSS SECTION VIEW OF COLD TRAP



Legend

○ Heaters normally available

● Location for unavailable heaters

⊗ Substitute heaters

▨ CO_2 used as coolant

① ② ③ Space for condensing UF_6

Note: Heater and cooling tube are inside #3 UF_6 space

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION Mr. E. J. Boling (K-25RC)
COPY TO Mr. D. C. Brater
Mr. W. D McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. C. P. Snyder

DATE December 16, 1952

ANSWERING LETTER DATE

SUBJECT K-1401 Material Release
Report No. 107

Report No.: KP-303, Part 24

This document consists of 1 pages
No. 1 of 7 copies, Series A

Date of Release	July, August, and September, 1952
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"A" and "B"
Amount of Material Involved	8,308 grams Uranium
Equipment	Converters
Source of Information	R. G. Nicol

Details: Known loss of estimated quantity.

During the months of July, August, and September, 1952, seven K-27 converters, ten K-29 converters and fifty K-31 converters were removed from service with ruptured tubes and sent to K-1401 for decontamination before being retubed.

These converters were fluorinated at a high temperature in the furnace stands for a period of two hours and the recovered UF_6 vented to the atmosphere. Data necessary for the calculation of the recovered UF_6 was taken on only ten converters. The calculated UF_6 for these ten converters ranged from 28 to 315 grams with an average of 124 grams per converter. Since there was no better basis for determining the UF_6 loss for the remaining converters, this average of 124 grams per converter was used. Uranium 235 assays for the material recovered from each converter were determined from the gradients. The assays ranged from 0.430% to 1.375%. Using the above as a basis, a loss of 8,308 grams uranium and 70 grams uranium 235 was calculated for the 67 converters which were fluorinated during the third quarter of 1952.

The above quantity of material will be shown as a known loss and credited to the 200 account.

H. G. Grisham

Approved: S. S. Stief

HGG/mef

SECRET

SECURITY INFORMATION

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling (K-25RC)
Mr. J Dykstra
Mr. W. D. McCluen
Mr. J. A. Marshall
Mr. B. H. Thompson

DATE December 16, 1952

ANSWERING LETTER DATE

SUBJECT K-1301 Material Release Report No. 108

Report No.: KP-303, Part 25

This document consists of 2 pages
No. 1 of 7 copies, Series A

Date of Release	December 3 - 10, 1952
Location of Release	K-1301
Balance Area Account No.	960
Material	C-435
Class or Assay	"A"
Amount of Material Involved	5.30 lbs. UF_6
Equipment	"A" and "B" Type Cylinders
Source of Information	N. Weasner

Details: Known loss of known quantity.

On December 3, 1952, six "B" type cylinders of C-435 material were sent to K-1301 for transfer to a larger "A" type cylinder Number A-557. These six cylinders with the shipped net weights in pounds and the returned heels are as follows:

Cylinder Number	Shipped Net Weight	Weight of Heel Returned
B-440	42.35	0.10
B-205	50.30	1.90
B-212	53.05	1.15
B-109	45.45	2.20
B-416	41.85	0
B-51	48.00	1.30
Totals	281.00	6.65

The net weight of the returned "A" type cylinder No. A-557 was 269.05 pounds. The difference between the total net weight of the six cylinders which were sent to K-1301 and the net weight of the heels which were returned in the "B" cylinders plus the amount of material which was transferred to the "A" cylinder was 5.30 pounds.

SECRET

SECURITY INFORMATION

This difference is an operational loss due to the transfer of material and the excessive accumulation of H.F. resulting from the transfer process. In transferring the material from one cylinder to another, it must be frozen down which results in a build-up of H.F. at the top of the cylinder. This H.F. must be vented to the atmosphere in order that the transfer between cylinders might be continued. The vented H.F. was accompanied by small amounts of UF_6.

This loss of 1,626 grams uranium and 7 grams uranium 235 will be carried as a known loss and credited to the 960 account since the material moved to K-1301 without transfer papers.

H. C. Grisham

Approved:

S. S. Stief

This document consists of 2 pag
No. 1 of 7 copies, Series a

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. D. C. Brater
Mr. W. D. McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

DATE January 22, 1953

ANSWERING LETTER DATE

SUBJECT K-1401 Material Release
Report No. 109

KP-303, Part 26

Date of Release	October, November, and December, 1952
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"A", "B", and "C"
Amount of Material Involved	10,281 grams uranium
Equipment	Converters
Source of Information	R. G. Nicol

Details: Known loss of estimated quantity.

During the second quarter of fiscal year 1953, seven K-27 converters, ten K-29 converters, and sixty-three K-31 converters were removed from service with ruptured tubes and sent to K-1401 for decontamination before being retubed.

These converters were fluorinated at a high temperature in the furnace stands for two or three hours and the recovered UF_6 vented to the atmosphere. Data necessary for the calculation of the recovered UF_6 were taken on twenty-two of the K-31 converters, four of the K-29 converters, and four of the K-27 converters. Using these data as a basis, the average recovery per converter for each section was determined and these averages used in calculating the total uranium recovered from the remaining converters for which no data were available. Uranium-235 assays for the recovered uranium were taken from the appropriate gradients on a building basis. These assays ranged from 0.420% to 2.925%. Using this method, a loss of 10,281 grams uranium and 83 grams uranium-235 was calculated for the eighty converters which were fluorinated during the second quarter of fiscal year 1953.

The above quantity of material will be carried as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

This document consists of 1 page
No. 1 of 8 copies, Series A

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE January 22, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. J. Dykstra
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson

SUBJECT K-1303 Material Release
Report No. 110

KP-303, Part 27

Date of Release	December 1, 1952
Location of Release	K-1303
Balance Area Account No.	330
Material	Uranyl Nitrate
Class or Assay	"C", 5.370%
Amount of Material Involved	312 liters
Equipment	Uranyl Nitrate Product Evaporator
Source of Information	D. R. Carson

Details: Known loss of known quantity.

Due to corrosive action in the product evaporator of K-1303, a leak developed during the latter days of November, 1952. Earlier in the month, the uranyl nitrate solution had been inventoried in the drums and 312 liters of the solution fed to the product evaporator. The normal flow in this recovery process is from the drums to the evaporator, to the drier, and then through the condensate lines to the holding pond. When the product drier was drained on December 1, 1952, the loss of uranium was discovered. It was found that the material had leaked into the steam chest and to the holding pond. No recovery was made. The equipment has now been repaired and restored to normal operation.

The 312 liters of uranyl nitrate solution contained 7,488 grams uranium and 402 grams uranium-235. The material was Class "C" at an assay of 5.370%. This quantity of material will be shown as a known loss and credited to the 330 account. Normally, it should be credited to the 370 account, but since there was no paper transfer of the material from 330 to 370, it will be credited to the former account.

H. G. Grisham
H. G. Grisham

Approved:
S. S. Stief
S. S. Stief

HGG:em

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

DATE January 22, 1953

ANSWERING LETTER DATE

SUBJECT K-131 Material Release
Report No. 111

KP-303, Part 28

Date of Release	September 9, 1952
Location of Release	K-131 Crude Feed Room
Balance Area Account No.	110
Material	Waste Feed
Class or Assay	"A", 0.440%
Amount of Material Involved	100 lbs. UF_6
Equipment	"A" Bath
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity.

On September 9, 1952, a chlorine type cylinder had fed out in the "A" bath in the crude feed room, and was floating as it had not been properly secured before it started feeding. This action caused the pig-tail to break and released an estimated quantity of 100 pounds UF_6. The automatic alarm system functioned but the cooling water lines were not directed at the cylinder valves and these valves had to be closed manually. A portion of the release was recovered by collecting the water in the water bath in sixteen drums. The difference between the total estimated release, 30,672 grams uranium and 135 grams uranium-235, and the amount recovered, 6,071 grams uranium and 27 grams uranium-235, will be shown as a known loss. This difference of 24,601 grams uranium and 108 grams uranium-235 will be credited to the 110 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

J. A. Parsons

OFFICIAL USE ONLY

CARBIDE AND CARBON CHEMICALS COMPANY
K-25 PLANT

Oak Ridge, Tennessee
January 24, 1953

To:
Mr. K. W. Bahler
Mr. E. C. Bollinger
Mr. Sylvan Cromer
Mr. G. H. Dykes
Mr. A. P. Huber
Mr. W. B. Humes
Dr. F. W. Hurd
Mr. J. A. Marshall
Mr. E. A. Pluhar
Mr. D. H. Rader
Mr. W. L. Richardson
Mr. M. F. Schwenn

From: Safety and Protection Division

Subject: Report of Material Release

Date of Incident: December 30, 1952
Nature of Incident: Process Material Released From Feed Cylinder as a Result of a Valve Failure
Location: K-402-1 Building, Cell Floor

While opening the valve of a heated feed cylinder preparatory to sampling the cylinder contents, an operator noted the escape of material from the valve and attempted to close it. As he did so, the valve stem shot out of its bonnet and a cloud of UF_6 emerged from the cylinder. The K-27 Buildings were evacuated of all personnel and the release was finally brought under control by removing the cylinder from its bath and freezing its contents with dry ice. Personnel involved were sent to the dispensary for a supervisory check and were returned to normal work. Rather extensive areas in some of the K-27 Buildings were contaminated.

FINDINGS

1. This particular cylinder had been filled at Paducah and shipped to K-25.
2. The events leading up to the release were as follows:
   a. The cylinder was placed in the feed bath at 5:00 p.m., on December 29, 1952.
   b. At 12:20 p.m., December 30, 1952, the sampling manifold was connected to the cylinder valve; the manifold was warmed until 12:30 p.m. when the cylinder valve was opened by R. L. Robinson, 13578, the only employee in the immediate vicinity of the cylinder.
   c. The operator reported that when he had opened the valve about 1/4-turn, he noted UF_6 escaping so he immediately closed it. Since the gas continued to escape, however, he was attempting to close the valve more tightly when its stem shot out with such force that his arm and the wrench he was holding were violently pushed aside.
3. Both the Area I office and the Central Control Room were immediately notified of the release; at about the same time, a fire alarm was actuated by employees not directly concerned with the incident.

OFFICIAL USE ONLY

4. Evacuation of K-27 personnel was requested over the public address system by the Central Control Room.
5. The steam supply to the K-27 feed baths was shut off so that continued heating of the cylinders in the bath would cease; in order to accomplish this, it was also necessary to shut off the steam supply to K-1131.
6. The ventilating fans in the basement of K-402-1 were stopped.
7. Attempts to freeze down the cylinder with CO_2 from 50-lb. extinguishers were unsuccessful.
8. The cylinder was removed from its bath with a Hyster and brought outside the building where the valve hole was plugged and the cylinder contents finally frozen with CO_2 ice.
9. All employees required to enter the UF_6 fog for operation or observation during the release were equipped with either a Chemox gas mask or an Army Assault mask, and the operator who shut off the ventilating fans wore an impermeable suit.
10. Thirty-three men, including two Maxon Construction Company employees, were sent to the dispensary for supervisory checks and returned to normal work.
11. At the time of the release, the air was heavily fogged; however, the results of samples taken showed below-P.A.L. contamination in all but a few locations by the end of the shift.
12. As a result of the settling of the hydrolyzed UF_6, the cylinder contents were rather uniformly distributed throughout the cell floors, pipe gallery, operating floors, and basements of the buildings affected, deposits being heaviest in K-402-1 and diminishing in successive buildings until little effect was noted beyond K-402-4; immediate radiation surveys of the locker rooms and canteen showed that they were unaffected. However, there were comparatively large piles of material in a few places in K-402-1 which were not considered special hazards problems because of the assay of the material concerned.
13. Approximately 2,506 lb. of material escaped from the cylinder; only about 300 lb. were retained.
14. Investigation showed that the accident was the direct result of the fracture of the union nut on the valve body; evidence indicated that this nut had previously cracked under strain and that this specific failure came as a result of the completion of the crack. It appeared that when the valve was opened the UF_6 escaped through the cracked nut; the act of closing the valve tightly put sufficient additional strain upon the nut that it split apart.
15. Metallurgical study indicated that the failure of this nut was caused by the selective attack of cylinder gases upon one of the phases of this binary alloy. This attack was probably accelerated by the high stresses in the metal, Duronze III.
16. In use, the nut had to be torqued sufficiently to provide a gas-tight metal-to-metal seal between the valve body and the bonnet, both of the same material. This frequently required a high torque and consequent overstressing of the nut.

17. A spot check of similar union nuts both at K-25 and at Paducah disclosed that cracks had already started in several of them.
18. The valve was a stock design of the manufacturer who claimed that no similar trouble had previously been encountered.
19. The valves originally installed in these cylinders were 3/4" one-piece valves which did not require the union nut. However, when operations required the use of 1" valves, the low-bid unit which was accepted is the present two-piece valve.

RESPONSIBILITY

The investigating committee consisting of R. H. Dyer, W. D. McCluen, and R. D. Shaffer of the Production Division and H. F. Henry of the Safety and Protection Division assigned the following responsibility for the release:

100% 2 - 1: In that the design of the valve was such as to necessitate overstressing the materials concerned in making gas-tight seals; in addition, operating specifications for valve closure failed to take this overstrain possibility into account.

RECOMMENDATIONS

1. That, as a temporary measure, the present union nuts of Duronze III material be replaced with plated steel nuts.
2. That a 1/32" thick P-10 gasket be used to effect a seal between the valve body and the union nut in all cases where these valves are used and that efforts be made to develop a satisfactory metal gasket for that seal.
3. That limitations on the torque applied in closing these valves be established for both the union nut and the stem.
4. That valves used on cylinders in inter-plant shipment be one-piece valves.
5. That consideration be given to providing an appropriate system for removing UF_6 from the air in those locations where similar incidents might be anticipated.
6. That, insofar as possible, all personnel who are assigned to locations where the operations include work with gaseous or liquid UF_6 under pressure be capable of using the Chemox mask and be so checked by the Medical Department.
7. That an ample emergency supply of CO_2 be maintained at all locations where either gaseous or liquid UF_6 is maintained under pressure.
8. That the plant policy of not calling the Fire Department in cases of material release be re-emphasized to plant personnel.

Hugh F. Henry

H. F. Henry
Safety and Radiation Hazards

HFH:lja

cc: Mr. J. Arendt
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. J. A. Parsons ✓
Mr. M. Schussler
Mr. R. D. Shaffer
Mr. H. G. P. Snyder
Safety Dept. File-K25RC

CARBIDE AND CARBON CHEMICALS COMPANY
K-25 Plant

Oak Ridge, Tennessee
February 16, 1953

To: Mr. M. F. Schwenn

From: Safety and Protection Division

Subject: Report of Material Release

Date of Incident: January 8, 1953
Nature of Incident: Process Material Released from Feed Cylinder as a Result of a Valve Failure
Location: K-131 Steam Bath, First Floor

An operator in K-131 smelled UF_6, and, upon examination, found vapor coming off the "B" bath unit where a feed cylinder was being pre-heated before feeding to the cascade. The room was evacuated, and the leaking cylinder valve frozen down by filling the dished head of the cylinder with water. Personnel involved were sent to the dispensary for supervisory examination, and were later returned to regular work.

FINDINGS

1. The cylinder involved had been filled at Paducah and shipped to K-25.

2. While hydro-testing the UF_6 release alarm and the CO_2 system, operators smelled UF_6 fumes. Little attention was paid to the odor until the fumes became more intense; investigation revealed vapors escaping from a cylinder valve in the "B" bath unit.

3. Unlike K-25 cylinders, the Paducah cylinder had 2 valves. In attempting to freeze down the leak, the operators initially directed the CO_2 extinguishers on the wrong valve. The release was finally stopped by filling the dished head of the cylinder with water.

4. Subsequent examination revealed that the valve was faulty and that a blind plastic gasket, held by a flare-fitting nut, had been placed over the side opening instead of the proper valve cap. Investigation did not reveal whether this had been done at Paducah or at K-25.

5. The heating of the cylinder caused a rise in pressure and seat leakage through the valve; this resulted in a rupture of the plastic gasket.

6. Since the UF_6 release alarm and CO_2 system were being hydro-tested, they were not available for the emergency.

7. The entire feed room was contaminated; however, decontamination efforts were begun immediately and were completed by the following morning.

RESPONSIBILITY

The investigating committee, consisting of Messrs. R. H. Dyer and H. G. Grisham of the Production Division and W. G. Butturini of the Safety and Protection Division, assigned the following responsibility for the release:

100% 5-3 In that the valve was improperly capped and had been placed in the steam bath in this condition.

RECOMMENDATIONS

1. That the proper valve cap be chained to such valves to prevent replacing them with a makeshift cap.

2. That operators be reinstructed in inspecting the valves before putting a cylinder in the steam bath.

W. G. Butturini

W. G. Butturini for
Safety and Radiation Hazards

WGB:msp

cc: Mr. R. H. Dyer
Mr. H. G. Grisham
Mr. H. G. P. Snyder
Safety File K-25RC

CARBIDE AND CARBON CHEMICALS COMPANY
K-25 Plant

Oak Ridge, Tennessee
February 24, 1953

To: Mr. E. C. Bollinger
Mr. M. F. Schwenn

From: Safety and Protection Division

Subject: Report of Material Release

Date of Incident: January 13, 1953
Nature of Incident: Process Material Released from Beach-Russ Pump
Location: K-631 "A" Pump Room, First Floor

A maintenance crew, preparing to drain the MFL oil from J-633-A2 Beach-Russ pump, slipped a hose over the drain valve nipple on the pump, and thence to their rig which consisted of an "always-safe" oil container and a carbon-alumina trap connected to a vacuum pump. When the drain valve was opened, the hose blew off and oil spewed out, followed by a cloud of UF_6. The area immediately fogged up and, since they had no masks, the maintenance men ran out, leaving the drain valve open. The operator was notified, and the release was finally brought under control by the plant emergency squad who succeeded in closing the drain valve. Personnel involved were sent to the dispensary for supervisory examination, where one employee was treated for minor HF burns, and all were returned to regular work. Extensive areas in K-631 were contaminated.

FINDINGS

1. The Beach-Russ pumps are kept in stand-by condition so that the UF_6 gas pressure can be maintained, even though the Elliott pump fails.

2. The preceding shift had attempted to evacuate the pump but had not completed the job because the cold trap had been filled.

3. A Hazardous Work Permit had been issued, but it did not indicate what operational steps had been taken to isolate and purge the pump. It was thought that the pump had been valved off from the system.

4. The MFL oil is drained from the Beach-Russ pump by means of a shop-made rig consisting of an "always-safe" oil container connected in series with a carbon-alumina trap and a vacuum pump. A hose is slipped over the nipple on the oil drain valve but is not clamped, since normally a vacuum is pulled on the hose to effect the oil transfer.

5. In this instance, the maintenance crew set up the trap unit and attached the hose in the usual manner; they opened the drain valve to drain the oil, and, as they did, pressure build-up in the pump due to condensed UF_6 blew the drain hose

off the nipple. How this amount of material condensed out in the pump was not definitely determined since the valving on the suction and discharge sides of the pumps appeared to be in order, and the pumps are kept warm by means of calrod heating units. Further investigation revealed UF_6 material condensed in the other booster pumps, and points toward either faulty valves or misoperation in valving at sometime previously.

6. Since they were not in possession of protective equipment, the maintenance crew evacuated immediately and sought the help of an operator to close the drain valve.

7. The operator donned an impermeable suit and a Chemox Mask, and attempted to enter the pump room; he was forced back because of HF fumes and suffered slight burns around the neck when the gas leaked under the improperly donned hood.

8. Because of the volume of gas escaping, it was believed that the Elliott pump was discharging into the Beach-Russ pump; therefore, the Elliott pump was shut-down. This produced no noticeable change in the UF_6 discharge, and an attempt was made to re-start the Elliott pump. However, it could not be re-started because of mechanical trouble.

9. The plant emergency squad arrived and, after several attempts, succeeded in locating the drain valve and closing it.

10. It was estimated that approximately 450 pounds of material escaped from the pump.

11. At sometime during the confusion, the building exhaust fans were shut-down, allowing the material to spread throughout the building.

RESPONSIBILITY

The investigating committee, consisting of Messrs. R. H. Dyer and H. G. Grisham of the Production Division, V. B. Goddard, Jr., of the Maintenance Division, and W. G. Butturini of the Safety and Protection Division, assigned the following responsibility for the release:

75% 5-3 In that the operator did not purge the pump properly.

25% 3-1 In that the method of performing the job and the equipment provided were not designed to handle the conditions as described.

RECOMMENDATIONS

1. That a permanent pipe connection be used as a drain line instead of a flexible hose.

2. That operators be reinstructed in making sure that all provisions of the work permit are carried out; this includes such items as purging, tagging of valves, etc.

3. That maintenance supervision be instructed to check the listed precautions and to determine their adequacy for the job under consideration.

4. That at least 2 men per shift be trained in the use of the impermeable suit and Chemox Mask equipment in this area.

W. G. Butturini
W. G. Butturini for
Safety and Radiation Hazards

WGB:msp

cc: Mr. R. H. Dyer
Mr. V. B. Goddard, Jr.
Mr. H. G. Grisham
Mr. H. G. P. Snyder
Safety File K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE January 24, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
✓Mr. G. T. E. Sheldon
Mr. H. G. P. Snyder

SUBJECT K-306-7 Material Release
Report No. 112

KP-303, Part 29

Date of Release	November 21, 1952
Location of Release	K-306-7 Field Laboratory
Balance Area Account No.	250
Material	UF_6
Class or Assay	"A"
Amount of Material Involved	1 lb. UF_6
Equipment	B-4 pump
Source of Information	Material Release Report, M. E. Woodward

Details: Known loss of estimated quantity.

Back pressure from the waste line in K-306-7 built up sufficiently to kick off the B-4 pump on the waste sample line. The pressure had increased to such an extent that, for approximately five minutes, it was above 20 psia. This excessive pressure caused a gasket to blow on the east B-4 pump and a bellows to rupture. The UF_6 material was forced back through the discharge line to the atmosphere through the east B-4 pump. It was estimated that a quantity of one pound UF_6 (307 grams uranium and 2 grams uranium-235) was lost. Through decontamination, only 14 grams uranium was recovered. The difference between the loss and the recovery of 293 grams uranium and 2 grams uranium-235 will be shown as a known loss and credited to the 250 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG/em

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. G. A. Jamieson
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

DATE January 24, 1953

ANSWERING LETTER DATE

SUBJECT K-1401 Material Release Report No. 113

KP-303, Part 30

Date of Release	October 31, 1952
Location of Release	K-1401
Balance Area Account No.	200
Material	C-835
Class or Assay	"B"
Amount of Material Involved	Unknown
Equipment	K-31 pump
Source of Information	George Hileman

Details: Known loss of unknown quantity.

While opening a K-31 A-C compressor for repair in the K-1401 compressor shop, a small, unknown quantity of material, which had been trapped in the pump, was released. Through decontamination, nine grams of uranium was recovered. No estimate of the release was made by personnel supervising the operation. This report is written as a matter of record.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION: Mr. J. A. Parsons K-303-8

DATE: May 12, 1953

ANSWERING LETTER DATE:

ATTENTION: Mr. E. J. Boling K25RC

COPY TO: Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT: K-631 Material Release Report No. 114

KP-303, Part 31

Date of Release	October 3, 1952
Location of Release	K-631
Balance Area Account No.	120
Material	C-435
Class or Assay	"A"
Amount of Material Involved	50 lbs. UF_6
Equipment	Drain line to waste cylinder
Source of Information	W. E. Goodall

Details: Known loss of estimated quantity.

While draining waste material into a cylinder in K-631, a gasket on the pigtail connection of the drain line blew out and released an estimated fifty pounds of UF_6. Repeated efforts to determine the extent of the recovery through decontamination have been to no avail. It is thought that this recovery became mixed with some other material and thus lost its identity. The total release of 15,336 grams uranium and 69 grams uranium-235 will be shown as a known loss and credited to the 120 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE January 24, 1953

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. E. J. Boling K25RC
✓Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-631 Material Release
Report No. 115

KP-303, Part 32

Date of Release	October 10, 1952
Location of Release	K-631 PDF Station
Balance Area Account No.	110
Material	C-435
Class or Assay	"A"
Amount of Material Involved	15 lbs. UF_6
Equipment	PDF cylinder
Source of Information	W. E. Goodall

Details: Known loss of estimated quantity.

While shutting off a ten-ton PDF cylinder at the K-631 PDF station, an operator slipped and accidentally stepped on a pressure indicator on the feed line. This caused a break in the feed line and a release of an estimated fifteen pounds of UF_6 to the atmosphere. No decontamination was possible. Hence, the entire release of 4,601 grams uranium and 20 grams uranium-235 will be carried as a known loss and credited to the 110 account.

H. G. Grisham

H. G. Grisham

Approved: S. S. Stief

S. S. Stief

HGG/em

M. F. Schwenn

[redacted]
SECURITY INFORMATION

CARBIDE AND CARBON CHEMICALS COMPANY
K-25 PLANT

Oak Ridge, Tennessee
May 11, 1953

To:
Mr. K. W. Bahler
Mr. E. C. Bollinger
Mr. Sylvan Cromer
Mr. G. H. Dykes
Mr. A. P. Huber
Mr. W. B. Humes
Dr. F. W. Hurd
Mr. J. A. Marshall
Mr. E. A. Pluhar
Mr. D. H. Rader
Mr. W. L. Richardson
Mr. M. F. Schwenn

From: Safety and Protection Division

Subject: Report of Material Release

Date of Incident: May 1, 1953
Nature of Incident: Coolant released as a result of cooler drip leg broken by fork lift truck
Location: Basement of Building K-303-2

A maintenance employee was driving a loaded fork lift truck through the basement of Building K-303-2 when its fender struck the valve on the drip leg of a coolant cooler, breaking off the tip of the drip leg and releasing the coolant. Since there were no personnel injuries and the broken pipe was the only property actually damaged, the principal plant loss occasioned by this accident was the value of the unrecovered coolant.

FINDINGS

1. As a result of the recent relocation of the seal shop, it was necessary to bring seal parts through the basement of the process building at frequent intervals.
2. The normal transfer route for these parts is along the south side of the basement; however, in this instance, the transfer was being made along the north side of the basement since, the potential hazard of breaking the coolant connections having been recognized, protective barriers were being placed about these pipes along the normal route and it was impractical to use the south route during this installation.
3. Because the building ventilating fans are placed near the north side of the building, the alternate transfer route being used was not along a straight path and was so congested that there was barely room to move equipment of the size used safely.
4. At the time of the accident, D. L. Stafford, 29083, a qualified operator of the vehicle involved, was maneuvering the truck slowly along the transfer lane while A. T. Daugherty, 26677, R. A. Rose, 29073, and R. M. Brackett, 23081 were walking along, helping to balance the load and advising the driver of possible obstructions. This crew had made 2 previous trips along this route without incident.

[redacted]
RESTRICTED
SECURITY INFORMATION

5. A load comprising 9 crates of seal housings and weighing about 2 tons was being carried on the fork lift.
6. When the pipe was broken, the liquid coolant flowed out of the system, approximately 4,200 lb. escaping before the leak could be stopped; of this, it is estimated that approximately 700 lb. may be recovered.
7. The present estimated cost of replacement of the coolant is about $10 per lb.
8. One of the employees involved stated that he thought the line contained only water; had he known it contained more valuable materials, he could have stopped the coolant flow with his hand or glove. No hand tools which could have been used in controlling this incident were immediately available.
9. The spill was brought under control after a telephone call from the seal shop in the adjoining building to the area supervisor's office had apprised operations personnel of the incident; however, prior attempts to locate an operator by using the building phone failed.
10. The incident necessitated the shutdown of 2 operating cells and a consequent loss of cell operating time of about 20 cell hours. In addition, the failure of 2 seals and a resultant additional operating loss of 15 cell hours are attributed to this incident.
11. Subsequent inspection of this and other buildings revealed that the drip legs at several similar locations were bent and otherwise showed signs of having been struck in the past. Basements of buildings throughout the process areas have been used for storage since the time of plant start-up in 1944 and thus vehicles of various types have frequently traveled in them. At present, several buildings, principally those in K-27, are frequently used for miscellaneous storage.

RESPONSIBILITY

The investigating committee composed of A. A. Forseman of the Production Division; H. L. Barnett, V. B. Goddard, J. J. Siegener, and D. E. Williams of the Maintenance Division; and H. F. Henry of the Safety and Protection Division assigned responsibilities as follows:

50% 3 - 1 Since the basements which are frequently used for storage were not designed for such use and the normal method of transfer of items in these basements is such that interference with process operations could be a significant problem.

20% 5 - 3 In that the employee, after making 2 trips successfully, could be expected to exercise the same caution in subsequent trips.

30% 5 - 4 Since steps taken as a result of similar previous incidents where materials were not lost had not proven practicable, and since the employees had not been adequately instructed concerning the type of materials with which they might become involved in this location.

RECOMMENDATIONS

1. That barricades be provided as protection for similar pipes in those process buildings most extensively involved in transfer operations and that vehicle doors in the less frequently used basements be locked so that it will be necessary for an operator to be present at any time a vehicle is in the basement concerned.
2. That the locations of telephones in those locations which employees infrequently visit be prominently identified and instructions for emergency use be posted.
3. That employees be informed concerning the materials with which they might expect to become involved in their particular work location, especially with respect to the hazard which might be anticipated from those materials.

Hugh F. Henry

H. F. Henry
Safety and Radiation Hazards

HFH:lja

cc: Mr. H. L. Barnett
Mr. A. A. Forseman
Mr. V. B. Goddard
Mr. J. J. Siegener
Mr. D. F. Williams
Safety File - K-25RC

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~~SECURITY INFORMATION~~

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO	Mr. J. A. Parsons	DATE	May 13, 1953
LOCATION	K-303-8	ANSWERING LETTER DATE	
ATTENTION			
COPY TO	Mr. E. J. Boling K25RC	SUBJECT	K-1401 Material Release Report No. 116
	Mr. D. C. Brater		
	Mr. W. D. McCluen		
	Mr. R. G. Nicol		KP-303, Part 33
	Mr. M. F. Schwenn		
	Mr. H. G. P. Snyder		

Date of Release	January, February, and March, 1953
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B" and "C"
Amount of Material Involved	29,913 grams uranium
Equipment	Converters and compressors
Source of Information	R. G. Nicol

Details: Known loss of estimated quantity.

During the third quarter of fiscal year 1953, five K-27 converters, ten K-29 converters, forty-four K-31 converters, and two K-31 compressors were removed from service and sent to K-1401 for decontamination. The converters had ruptured tubes and were decontaminated before being re-tubed.

These converters were fluorinated at a high temperature in the furnace stands for two or three hours, and the recovered UF_6 was vented to the atmosphere. Data necessary for the calculation of the recovered UF_6 were taken on twelve of the K-31 converters, both K-31 compressors, five of the K-29 converters, and three of the K-27 converters. Using these data as a basis, the average recovery per converter for each section was determined and these averages used in calculating the total uranium which was vented to the atmosphere from the remaining converters for which no data was available. Uranium-235 assays for the recovered uranium were taken from the appropriate gradients on a per unit basis. These assays ranged from 0.700% to 3.650%. Using this method as a basis, a total loss of 29,913 grams uranium and 353 grams uranium-235 was calculated for the fifty-nine converters and two compressors which were fluorinated during the third quarter of fiscal year 1953.

The above quantity of material will be carried as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

S. S. Stief
S. S. Stief

RESTRICTED DATA

This document contains restricted data as defined in the Atomic Energy Act of 1946. Its transmittal or the disclosure of its contents in any manner to an unauthorized person is prohibited.

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~~SECURITY INFORMATION~~

WCX-163

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE May 13, 1953

ANSWERING LETTER DATE

SUBJECT K-413 Material Release Report No. 117

KP-303, Part 34

ATTENTION Mr. E. J. Boling K25RC
COPY TO ✓Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

Date of Release	November 3, 1952
Location of Release	K-413
Balance Area Account No.	200
Material	UF_6
Class or Assay	"A", 0.411%
Amount of Material Involved	10 lbs. UF_6
Equipment	Control valve
Source of Information	Material Release Report

Details: Known loss of estimated quantity.

On November 3, 1952, while the Instrument Department was cutting out a control valve from a line to the suction of a Beach-Russ pump, an estimated quantity of ten pounds UF_6 was released. The surrounding area was decontaminated with water, recovering 1378 grams uranium and 6 grams uranium-235. The release was estimated at 3067 grams uranium and 13 grams uranium-235.

The difference, between the total release and the recovery, of 1689 grams uranium and 7 grams uranium-235 will be shown as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(ENTER NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE May 13, 1953

ANSWERING LETTER DATE

ATTENTION Mr. E. J. Boling K25RC
COPY TO Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-131 Material Release Report No. 118

KP-303, Part 35

Date of Release	January 8, 1953
Location of Release	K-131
Balance Area Account No.	110
Material	UF_6
Class or Assay	"A", 0.625%
Amount of Material Involved	193 lbs. UF_6
Source of Information	R. H. Dyer
Equipment	UF_6 feed cylinder

Details: Known loss of known quantity.

On January 8, 1953, an operator in K-131 smelled UF_6, and found vapor coming from the "B" bath where a Paducah feed cylinder was being pre-heated before being fed. The room was evacuated and the leaky cylinder valve frozen down by filling the head of the cylinder with water. The release attained major proportions due to the fact that the UF_6 release alarm and CO_2 system were being hydro-tested at the time and not available for use. Furthermore, the Paducah cylinder contained two valves, and, in attempting to freeze down the leak, the operators initially directed their efforts to the wrong valve.

Later examination of the cylinder revealed that the valve was faulty and that a plastic gasket, held by a flare-fitting nut, had been placed over the side opening instead of the proper valve cap. When the cylinder became heated, the rise in pressure caused a seat leakage through the valve and a final rupture of the plastic gasket.

This cylinder, No. 33108, originally had a net weight of 3971 pounds of UF_6 and after the release contained 3778 pounds. There was no recovery as the material was washed down the drain. This release of 193 pounds UF_6, 59,197 grams uranium and 370 grams uranium-235, will be carried as a known loss and credited to the 110 account.

H. G. Grisham
H. G. Grisham

S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION: Mr. J. A. Parsons K-303-8

DATE: May 12, 1953

ANSWERING LETTER DATE:

ATTENTION COPY TO:
Mr. E. J. Boling K25RC
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT: K-631 Material Release Report No. 119

KP-303, Part 36

Date of Release	January 13, 1953
Location of Release	K-631
Balance Area Account No.	120
Material	UF_6
Class or Assay	"A"
Amount of Material Involved	450 lbs. UF_6
Equipment	J-633-A2 Beach-Russ Pump
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity.

On January 13, 1953, a maintenance crew, preparatory to draining the MFL oil from the Beach-Russ pump J-633-A2, connected a flexible hose over the drain valve nipple on the pump to their shop-made rig consisting of an "always-safe" oil container connected in series with a carbon-alumina trap and a vacuum pump. When the drain valve was opened the hose blew off and the oil flowed out, followed by a cloud of UF_6. The area immediately became heavily contaminated and the maintenance men, not having their protective masks, ran out of the building and left the drain valve open. The operator was notified, and the release was finally brought under control by the plant emergency squad after several attempts were made to locate and close the drain valve. During the confusion, the building exhaust fans were shut down and the entire building became heavily contaminated. Subsequent investigation revealed that the preceding shift had attempted to evacuate the pump but had not completed the job because the cold trap had been filled. It was erroneously thought that the pump had been properly isolated from the system and purged before the oil-draining operation was started. The pressure build-up in the pump due to the condensed UF_6 blew the drain hose off the nipple. The cause for such a condensation has not been determined since the valving on both the suction and discharge sides of the pump was in order, and the pump was kept heated by Calrod heating units. However, further investigation showed condensation in other booster pumps, and indicates either faulty valves or mis-valving at some previous time. The extent of the release indicated that the Elliott pump was discharging into the Beach-Russ; hence, the Elliott was shut down but with no noticeable change in the release. The Elliott pump could not be re-started because of mechanical difficulty.

It was estimated that 450 pounds of material was released. The area was thoroughly decontaminated but a recovery of only 9947 grams uranium and 55 grams uranium-235 was made. The remaining major portion of the spill of 128,077 grams uranium and 739 grams uranium-235 will be shown as a known loss and credited to the 120 account.

H. G. Grisham

H. G. Grisham

Approved: S. S. Stief

S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J A. Parsons
LOCATION K-303-8

DATE May 12, 1953

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. E. J. Boling K25RC
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-402-1 Material Release
Report No. 120

KP-303, Part 37

Date of Release	December 30, 1952
Location of Release	K-402-1 feed furnace
Balance Area Account No.	115
Material	Paducah product
Class or Assay	"A", 0.561%
Amount of Material Involved	2506 lbs. UF_6
Equipment	Feed cylinder No. 33031
Source of Information	R. H. Dyer

Details: Known loss of known quantity.

On December 30, 1952, a major material release occurred at the K-402-1 feed furnaces. A cylinder, No. 33031, of Paducah product which had been heated, was being made ready for sampling when a valve gland nut on the cylinder broke. The high pressure of the heated cylinder caused an immediate release of the major portion of material in the cylinder. Units K-402-1 through K-402-5 were heavily contaminated. All personnel in the K-27 units were evacuated. Operators re-entered the building and shut off the ventilating fans. Operators and maintenance personnel inserted a plug in the valve and the cylinder was frozen down, hauled out of the building and the valve replaced. A measured quantity of 2506 pounds of UF_6 was released from the cylinder. An extensive decontamination program of several days duration was instituted but a recovery of only 27,996 grams uranium and 158 grams uranium-235 was effected since most of the material had escaped to the atmosphere. The remaining portion of the release, 740,183 grams uranium and 4151 grams uranium-235, will be carried as a known loss and credited to the 115 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:ved

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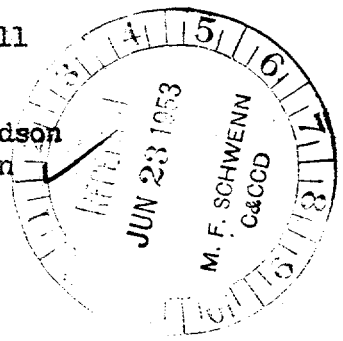
CARBIDE AND CARBON CHEMICALS COMPANY
K-25 Plant

Oak Ridge, Tennessee
June 18, 1953

To: Mr. K. W. Bahler, Mr. E. C. Bollinger, Mr. Sylvan Cromer, Mr. J. H. Dykes, Mr. A. P. Huber, Mr. W. B. Humes, Dr. F. W. Hurd, Mr. J. A. Marshall, Mr. E. A. Pluhar, Mr. D. H. Rader, Mr. W. L. Richardson, Mr. M. F. Schwenn



From: Safety and Protection Division

Subject: Report of Material Release

Time and Date of Incident: 1:15 P.M., June 1, 1953
Nature of Incident: Process material released from 1-Ton Feed Cylinder #29415 as a result of a valve failure.
Location: Sampling Manifold, K-1131 Building
Employees Directly Involved In Release: E. H. Gilliam, J. P. Hood, W. H. Jarvis, L. B. Nothern, R. N. Rice, A. Varlan
Loss of Material: 952 lb. of UF_6

A one-ton chlorine cylinder was positioned on the sampling manifold cradle in the K-1131 Building following pre-heating and was being prepared for actual sampling. As the valve cap was being removed, the union nut fractured circumferentially, and the upper part of the 2-piece valve shot out of the valve body. A cloud of UF_6 streamed from the cylinder, fogging the entire wing of the building. The building was evacuated of all personnel with the exception of those attempting to control the release. The release was finally stopped by the application of dry ice and water fog from a fire hose; the cylinder was later moved outside the building and packed with dry ice. Personnel involved in the release were sent to the dispensary for a supervisory check, and returned to regular work. No significant contamination outside K-1131 was noted.

FINDINGS

1. History of the cylinder involved:
   a. The cylinder valve was changed from a one-piece 3/4" Kerotest valve to a 2-piece 1" Superior valve in December, 1952.
   b. That same month, it was sent to K-1131 for filling and sampling.
   c. After sampling, it was sent to plant storage on January 15, 1953, and remained there until March 12, 1953, when it was shipped to Paducah.
   d. The cylinder contents were fed into the Paducah system and the empty cylinder returned to K-25 on May 15, 1953.
   e. The cylinder was again sent to K-1131 and filled on May 20, 1953 after which it was stored until May 31, when it was pre-heated in preparation for sampling the next day.
2. The events leading up to the release are as follows:

a. The cylinder had been removed from the pre-heating bath south of K-1131 Building, had been agitated on the vibrating machine, and then positioned in the sampling manifold for sampling.

b. The operator was removing the valve cap to connect the cylinder to the manifold when the Duronze III union nut fractured circumferentially, and the top part of the valve was blown from the cylinder.

3. The operator attempted to stop the release with a 50-pound CO_2 extinguisher, but, as was the case during a similar release of December 30, 1952, the attempt was unsuccessful and he sent for help.

4. The Shift Superintendent's Office was notified along with the Fire Department; however, since the emergency was a release, the Fire Department was advised by the Shift Superintendent to stand by.

5. When the Fire Department did not arrive, an employee of the area pulled the fire alarm box and the Fire Company responded. A hose was laid from the pumper, and water fog was supplied to cool the cylinder and to knock down some of the dense fumes. Dry ice was then brought up and packed against the cylinder for further cooling, and the cylinder discharge began to lessen.

6. The release was brought under control within 40 minutes after its beginning, and the cylinder was removed from the building.

7. The UF6 gas cloud drifted from the K-1131 Building across the plant and several downwind plant areas were evacuated. The residual material from the "fall-out" of this release was found to be below plant limits.

8. The 952 lb. discharged from the cylinder to the atmosphere represented approximately half of the contents of the cylinder at the time of the accident.

9. All the employees required to enter the area of the release either for operation or observation were equipped with the Army Assault Mask.

10. Twenty-two employees, including some from locations over which the gas cloud passed, were sent to the dispensary for supervisory examination and returned to normal work.

11. The general area contamination was not drastically increased as a result of the release.

12. Representative air samples taken during the release indicated that only in K-1131 was the airborne material above the P.A.L.

13. Minor HF burns resulted when 3 employees were wet with water fog and UF_6 hydrolyzed on their bodies.

14. A metallurgical study indicated that the failure of the nut was caused by the same conditions that were responsible for the union nut failure and resultant release on December 30, 1952 at the K-402-1 Building.

15. The cylinder valve had not been modified by use of a steel union nut as had been recommended after the December release; however, a plant check revealed only 2 other valves that had not been modified out of approximately 400 cylinders.

RESPONSIBILITY

The investigating committee, composed of Messrs. B. H. Thompson, chairman, of the Chemical Division; J. W. Arendt of the Production Division; G. S. Hensley of the Superintendent's Division; and S. L. Sullins of the Safety and Protection Division, assigned the following responsibilities for the release:

50% 2-1 In that the design of the valve did not take into consideration either the necessary torquing to obtain the desired seals, or the fact that the cylinder gases create a metallurgical condition that would result in a weakening of the metal.

50% 5-4 In that the cylinder valve union nut had not been exchanged for the recommended steel nut.

RECOMMENDATIONS

1. That all 2-piece 1" Superior valves used for this purpose be modified to utilize a steel union nut; also, that a system be set up for identifying the nut in use.
2. That a system be set up for checking incoming cylinders to determine if they have been properly modified with the steel union nut prior to K-25 use.
3. That a metallurgical study be made of valves which have been in service to establish a replacement schedule for preventive action.
4. That efforts be made to expedite the delivery of the one-piece valve purchased for this use.
5. That a permanent fog spray system, properly enclosed, be located at feeding and sampling stations where critical mass is not a problem in order to attain a cooling effect on the cylinder in case of a release, hydrolization and clearance of the gas cloud during a release, and, finally, reclamation of material following a release.
6. That a portable fog spray system be maintained in close proximity to feeding and sampling stations where critical mass is not a problem so that operating groups might utilize such equipment within minutes of the beginning of a release.

S. L. Sullins

S. L. Sullins
Health Physics and Safety

SLS:msp

cc: Mr. J. W. Arendt
Mr. R. H. Dyer
Mr. G. S. Hensley
Mr. B. H. Thompson
Insurance Department
Medical Department
Safety Department K25RC

INTER-COMPANY CORRESPONDENCE

E6204

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION: Mr. J. A. Parsons K-303-8

DATE: July 21, 1953

ANSWERING LETTER DATE:

ATTENTION

COPY TO: Mr. E. J. Boling (K25RC)
Mr. W. D. McCluen
Dr. F. W. Hurd
Dr. C. H. Mahoney
Mr. J. H. O'Brien
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. W. E. Tewes

SUBJECT: K-1401 Material Release Report No. 121

KP-303, Part 38

Date of Release	January 30, 1953
Location of Release	K-1401, Barrier Research
Balance Area Account No.	870
Material	C-616
Class or Assay	"B", 0.7115%
Amount of Material Involved	86 grams uranium
Equipment	Cold trap
Source of Information	W. E. Tewes

Details: Known loss of estimated quantity.

On January 30, 1953, operating personnel in the Barrier Research 20-stage pilot plant had overfilled a cold trap. As a result of the failure of a valve to close properly due to a plug in the valve seat, a minor release occurred. The area was decontaminated through the use of water. The loss of material was estimated at 86 grams uranium and 1 gram uranium 235. This amount will be credited to the 870 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

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TO LOCATION: Mr. J. A. Parsons, K-303-8

DATE: May 13, 1953

ANSWERING LETTER DATE:

ATTENTION COPY TO: Mr. E. J. Boling K25RC
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT: K-402-6 Material Release Report No. 122

KP-303, Part 39

Date of Release	October 13, 1952
Location of Release	K-402-6 Booster Pump Room
Balance Area Account No.	200
Material	UF_6
Class or Assay	"A", 0.450%
Amount of Material Involved	2 lbs. UF_6
Equipment	No. 3 Booster Pump
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity.

On October 13, 1952, a seal on one of the Beach-Russ pumps in the K-402-6 Booster Pump room failed while the pump was being used to pump waste material from K-631. Due to this seal failure, an estimated two pounds of UF_6 escaped into the room. The pump was isolated and the release discontinued after a duration of approximately thirty minutes. No recovery was effected. The total release of 613 grams uranium and 3 grams uranium-235 will be shown as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE May 14, 1953

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ATTENTION
COPY TO Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. G. T. E. Sheldon
Mr. H. G. P. Snyder

SUBJECT K-306-7 Material Release
Report No. 123

KP-303, Part 40

Date of Release	December, 1952
Location of Release	K-306-7 Field Laboratory
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B"
Amount of Material Involved	20 lbs. UF_6
Equipment	B-4 pump and discharge line
Source of Information	G. T. E. Sheldon

Details: Known loss of estimated quantity.

During the latter part of December, 1952, a series of minor material releases occurred in the K-306-7 Field Laboratory as follows: (1) December 24, 1952 - release occurred when bellows of west B-4 pump ruptured due to build up of back pressure resulting from a plug in the pump discharge line; (2) December 29, 1952 - release similar to (1) above occurred. Pump had to be frozen down with dry ice; (3) December 30, 1952 - a release occurred when a tee inthe B-4 pump discharge line split. Release was caused by plugging in the discharge line.

It was estimated that twenty pounds of UF_6 was released in these three spills. The area was decontaminated but most of the material escaped to the atmosphere. Through decontamination, a quantity of 225 grams uranium and 2 grams uranium-235, was recovered. The remainder of the release, 5909 grams uranium and 59 grams uranium-235, will be shown as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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INTER-COMPANY CORRESPONDENCE

E6217

(SENDER NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE July 21, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling (K-25RC)
Mr. D. C. Brater
Mr. W. D. McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-1401 Material Release
Report No. 124

KP-303, Part 41

Date of Release	April, May, June, 1953
Location of Release	K-1401
Balance Area Account No.	200
Material	UF6
Class or Assay	"B" and "C"
Amount of Material Involved	12,630 grams uranium
Equipment	Converters
Source of Information	R. G. Nicol

Details: Known loss of calculated quantity.

During the fourth quarter of fiscal year 1953, a total of thirty-seven K-31 converters, five K-29 converters, two K-27 converters and one converter from the K-309-3 test loop were removed from service and sent to K-1401 for decontamination. These converters contained ruptured tubes and were being decontaminated before being retubed.

These converters were fluorinated at a high temperature in the furnace stands for a period of two or three hours, and the recovered UF6 was vented to the atmosphere. Data necessary for the calculation of the recovered UF6 were taken on all of the converters except nine. Using these data as a basis, the average recovery for the nine remaining converters was estimated. Uranium 235 assays for the recovered uranium were taken from the appropriate monthly gradients on a per unit basis. These assays ranged from 0.760% to 5.500%. Using this method, a total loss of 12,630 grams uranium and 262 grams uranium 235 was calculated for the forty-five converters which were fluorinated during the fourth quarter of fiscal year 1953.

The above quantity of material will be carried as a known loss and credited to the 200 account since this material originally came from the cascade and moved to K-1401 without benefit of transfer papers.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

E6219

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE July 21, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling (K-25RC)
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson
Mr. A. Varlan

SUBJECT K-1131 Material Release
Report No. 125

KP-303, Part 42

Date of Release	June 1, 1953
Location of Release	K-1131
Balance Area Account No.	550
Material	UF_6
Class or Assay	"A"
Amount of Material Involved	952 lbs. UF_6
Equipment	Cylinder No. 29415
Source of Information	D. R. Carson

Details: Known loss of known quantity.

On June 1, 1953, while the valve cap on Cylinder No. 29415 was being removed in preparation for sampling before sending the cylinder to Paducah, it is thought that enough jar resulted to crack the union on the valve. The high pressure of the heated cylinder blew out the valve, leaving a one-inch hole in the cylinder and released 952 lbs. UF_6. The C-616 had corroded or attacked the union to such an extent to cause the failure. This release was a result of an operational error, since the cylinder should not have been heated or sampled at this time. The area was extensively decontaminated through the use of water and a recovery of 22,854 grams uranium and 152 grams uranium 235 was effectdd. The difference between the total loss and the recovery, 269,134 grams uranium and 1790 grams uranium 235, will be carried as a known loss and credited to the 550 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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INTER-COMPANY CORRESPONDENCE

E6227

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE July 21, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-631 Material Release
Report No. 126

KP-303, Part 43

Date of Release	5-1-53
Location of Release	K-631
Balance Area Account No.	120
Material	UF_6
Class or Assay	"A"
Amount of Material Involved	50 lbs. UF_6
Equipment	Pipe line
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity.

The old discharge line from the J-634 pump to the carbon trap had been cut and blanked off. On May 1, 1953, in the lower carbon trap room, a blank off plate, on the carbon trap side of the cut, blew off of the line which is tied into the piping system connecting the vent surge system and the condenser vent lines. Initially, the smoke from the release was too heavy for personnel to enter the room to discover the origin of the release. Feed and condensation were discontinued. The spill gradually slowed down and finally stopped of its own accord. The PR indicated that the vent surge pressure was below atmospheric pressure at time of release. It is thought that a solid or liquid in the line built up pressure to such an extent that the blank off plate was blown from the end of the line. It was estimated that fifty pounds of material was lost. The area was decontaminated but a recovery of only 93 grams uranium and 1 gram uranium 235 was effected. The difference between the total loss and the recovery, 15,243 grams uranium and 98 grams uranium 235, will be shown as a known loss and credited to the 120 account.

H. G. Grisham
H. G. Grisham

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INTER-COMPANY CORRESPONDENCE

E 6233

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE July 21, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling (K25RC)
Mr. W. D. McCluen
Mr. M F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release
Report No. 127

KP-303, Part 44

Date of Release	July 18, 1953
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	UF_6
Class or Assay	Class "C", 2.882%
Amount of Material Involved	91.02 liters
Equipment	Drum No. R-2077
Source of Information	N. Weasner

Details: Known loss of known quantity

On July 18, 1953, a leak was discovered in drum No. R-2077 which contained 91.02 liters of laboratory waste solution material from Laboratory "A". This leak resulted from the corrosive action of the acid solution on the drum and released the entire contents of the drum. No recovery was effected. The entire contents of the drum, 78 grams uranium and 2 grams uranium 235, will be carried as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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TO Mr. J. A. Parsons ✓
LOCATION K-303-8

DATE November 17, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-402-8 Cold Trap
Material Release
Report No. 128

KP-303, Part 45

Date of Release	September 30, 1953
Location of Release	K-402-8 Cold Trap
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B", 835
Amount of Material Involved	29.730 Kg. U
Equipment	K-402-8 Cold Trap
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity.

On September 30, 1953, a uranium hexafluoride release occurred in the K-402-8 cold trap room. At the time of the release, the cold trap room was being used to evacuate the K-631 vent surge drum. The release was caused by the loss of refrigeration capacity to the K-402-8 cold traps at 11:45 PM, allowing the temperatures to rise approximately 140° F. The loss of refrigeration capacity was the result of the placing of a large load on the refrigeration system in K-1131. The K-402-8 cold traps stayed hot for forty-five minutes until the refrigeration load in K-1131 diminished. Due to an operational error, the alumina traps in K-402-8 were bypassed and the material blown to the atmosphere. However, only an estimated 25% of the material in the vent surge drum and accumulator tanks was actually blown to the atmosphere. This amount of 29,730 grams uranium and 262 grams uranium-235 will be shown as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE C. 65893

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE November 17, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson
Mr. A. Varlan

SUBJECT K-1131 Material Release
Report No. 129

KP-303, Part 46

Date of Release	October 30, 1953
Location of Release	K-1131
Balance Area Account No.	550
Material	Hanford Waste
Class or Assay	"A"
Amount of Material Involved	50 pounds UF_6
Equipment	Secondary cold traps
Source of Information	A. Varlan

Details: Known loss of estimated quantity.

On October 30, 1953, an estimated quantity of fifty pounds of Hanford waste material was released to the atmosphere as a result of the loss of refrigeration on the secondary cold traps and the resultant heating of the traps. No recovery was effected. This release of 15,336 grams uranium and 103 grams uranium-235 will be carried as a known loss and credited to the 550 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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E-65894

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE November 17, 1953

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release
Report No. 130

KP-303, Part 47

Date of Release	September 13, 1953
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	"A" and "B"
Amount of Material Involved	314.31 liters
Equipment	Drums Nos. R-2074, R-2274, R-2268
Source of Information	N. Weasner

Details: Known loss of known quantity.

On September 13, 1953, leaks were discovered in the following drums of laboratory waste solution:

1. Drum No. R-2074 containing 99.41 liters.
2. Drum No. R-2268 containing 110.94 liters.
3. Drum No. R-2274 containing 103.96 liters.

These leaks resulted from the corrosive action of the acid solution on the drums. A recovery of 83.90 liters of material was effected through decontamination. The difference between the original contents of the three drums and the recovered quantity will be shown as a known loss. This quantity of 12,387 grams uranium and 84 grams uranium-235 will be credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved:
S. S. Stief
S. S. Stief

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WCX-163 (3-51)

INTER-COMPANY CORRESPONDENCE E-6980l

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE December 10, 1953

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. E. J. Boling K25RC
Mr. D. C. Brater
Mr. W. D. McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-1401 Material Release, Report No. 131

KP-303, Part 48

Date of Release	July, August, September, 1953
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B" and "C"
Amount of Material Involved	3,512 grams uranium
Equipment	Converters
Source of Information	R. G. Nicol

Details: Known loss of calculated quantity.

During the first quarter of fiscal year 1954, a total of eight K-31 converters and seven K-29 converters were removed from service and sent to K-1401 for decontamination. These converters contained ruptured tubes and were being decontaminated before being retubed.

These converters were fluorinated at high temperatures in the furnace stands for a period of two or three hours and the recovered UF_6 vented to the atmosphere. Using the pressure, temperature, and analytical data which were taken, the recovery was calculated for each converter. Uranium-235 assays for the recovered uranium were taken from the appropriate monthly gradients on a per unit basis. These assays ranged from 1.250% to 2.850%. Thus a calculated amount of 3,512 grams uranium and 66 grams uranium-235 was vented to the atmosphere from the fifteen fluorinated converters during the first quarter of fiscal year 1954.

The above quantity of material will be carried as a known loss and credited to the 200 account since this material moved from the cascade to K-1401 without a paper transfer.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE E-69802

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TO ✓Mr. J. A. Parsons
LOCATION K-303-8

DATE December 10, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 15-A Material Release, Report No. 132

KP-303, Part 49

Date of Release	October 30, 1953
Location of Release	Vault 15-A
Balance Area Account No.	920
Material	Normal UF_6
Class or Assay	"B"
Amount of Material Involved	186.88 liters
Equipment	Drum No. E-1437
Source of Information	N. Weasner

Details: Known loss of known quantity.

On October 30, 1953, a leak was discovered in drum No. E-1437 in Vault 15-A. This leak was caused by the corrosive action of the acid solution on the drum. The drum originally contained 510 grams uranium and 4 grams uranium-235. Through decontamination, a recovery of 186 grams uranium and 1 gram uranium-235 was effected. The difference between the original contents of the drum and the recovery will be shown as a known loss. This quantity of 324 grams uranium and 3 grams uranium-235 will be credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

E-69726

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE December 23, 1953

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 133

KP-303, Part 50

Date of Release	November 20, 1953
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	Class "B"
Amount of Material Involved	509.86 liters
Equipment	Storage drums
Source of Information	N. Weasner

Details: Known loss of known quantity

On November 20, 1953, leaks were discovered in the following drums stored in Vault 16-A:

Drum No.	Amount of Material in Drum
E-807	192.43 liters
R-1854	106.17 liters
R-2306	108.88 liters
R-2628	102.38 liters

These leaks resulted from the corrosive action of the laboratory waste acid solution on the drums. The total original contents of the drums were 3,753 grams uranium and 37 grams uranium-235. Through decontamination, a recovery of 901 grams uranium and 8 grams uranium-235 was made. The difference between the original contents of the drums and the recovery will be shown as a known loss. This quantity of 2,852 grams uranium and 29 grams uranium-235 will be credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

E-69732

TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE December 23, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 15-A Material Release, Report No. 134

KP-303, Part 51

Date of Release	November 23, 1953
Location of Release	Vault 15-A
Balance Area Account No.	920
Material	Water Solution (W-1)
Class or Assay	Normal
Amount of Material Involved	627.20 liters
Equipment	Storage drums
Source of Information	N. Weasner

Details: Known loss of known quantity

On November 23, 1953, leaks were discovered in three drums of water solution in Vault 15-A. These drums with the contents of each follow:

Drum No.	Contents of Drums
E-1541	204.80 liters
E-1550	207.36 liters
E-1297	215.04 liters

These leaks were caused by the corrosive action of the solutions on the drums. The drums originally contained 3,871 grams uranium and 26 grams uranium-235. Through decontamination, a recovery of 760 grams uranium and 5 grams uranium-235 was made. The difference between the original contents and the recovery of 3,111 grams uranium and 21 grams uranium-235 will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

HGG:gm

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

E-69738

TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE December 28, 1953

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. E. J. Boling K25RC
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-413 Material Release, Report No. 135

KP-303, Part 52

Date of Release	August 2, 1953
Location of Release	K-413
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B", C-835
Amount of Material Involved	5,000 grams uranium
Equipment	Alumina traps
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity

On August 2, 1953, an estimated quantity of 5,000 grams uranium and 40 grams uranium-235 was released to the atmosphere. This release of tails material occurred during a dumping operation of the alumina traps in K-413. No recovery was effected as the material escaped to the atmosphere. This release will be shown as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

E-70026

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE December 28, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson
✓Mr. A. Varlan

SUBJECT K-1131 Material Release, Report No. 136

KP-303, Part 53

Date of Release	August 13, 1953
Location of Release	K-1131
Balance Area Account No.	550
Material	UF_4
Class or Assay	"A"
Amount of Material Involved	1 pound
Equipment	Powder seal
Source of Information	D. R. Carson

Details: Known loss of estimated quantity

On August 13, 1953, a powder seal failed on the fluorine scrubber in K-1131 and resulted in a release of UF_4 material. Most of the release was recovered, with an estimated loss of one pound UF_4 material. This estimated release of 300 grams uranium and 2 grams uranium-235 will be shown as a known release and credited to the 550 account.

H. G. Grisham
H. G. Grisham

HGG:em

Approved: S. S. Stief
S. S. Stief

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WCX-163 (3-51)

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

E.69925

TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE December 28, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-402-4 Material Release, Report No. 137

KP-303, Part 54

Date of Release	September 6, 1953
Location of Release	K-402-4
Balance Area Account No.	115
Material	Paducah Product
Class or Assay	C-935
Amount of Material Involved	10 pounds UF_6
Equipment	Cylinder A-1056
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity

A material release estimated at 10 pounds of Paducah product material occurred in front of K-402-4 at 0414, September 6, 1953, due to the failure of a valve on cylinder No. A-1056. The valve was being replaced when the release occurred and the material escaped to the atmosphere with no possibility of a recovery. This release will be shown as a known loss and credited to the 115 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE February 8, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. S. Cromer
Mr. R. B. Korsmeyer
Mr. W. D. McCluen
Mr. J. W. Michel
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-1401 Material Release, Report No. 138

KP-303, Part 55

E-71150

Date of Release	September 9, 1953
Location of Release	K-1401 Basement
Balance Area Account No.	500
Material	UF_6
Class or Assay	C-835
Amount of Material Involved	18 lbs. UF_6
Equipment	Aluminum Cylinder
Source of Information	J. W. Michel

Details: Known loss of estimated quantity

On September 9, 1953, a small aluminum cylinder, 8 inches x 3 inches, exploded in the basement of K-1401, releasing an estimated 18 pounds of material. This rupture in the cylinder resulted from a plug which had developed in the discharge line beyond the cylinder valve. Continued heating built up sufficient pressure to rupture the cylinder and release the material to the atmosphere. No recovery was effected. This total release of 5,521 grams uranium and 50 grams uranium-235 will be shown as a known loss and credited to the 500 account.

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H. G. Grisham

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

E-10027

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE December 29, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. R. H. Dyer
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-413 Material Release, Report No. 139

KP-303, Part 56

Date of Release	May 25, 1953
Location of Release	K-413
Balance Area Account No.	200
Material	Normal
Class or Assay	C-735
Amount of Material Involved	271.25 pounds UF_6
Equipment	Cylinders Nos. ERD-543 and ERD-632
Source of Information	R. H. Dyer

Details: Known loss of known quantity

A program for the transfer of the contents of several small cylinders which had been in storage and earlier obtained from various areas of the plant to one large cylinder was in progress during the later days of May, 1953. This operation was accomplished in the normal manner of vaporizing the UF_6 by heating the small cylinder, condensing the UF_6 in a condenser, and draining into the large cylinder.

On May 25, 1953, cylinder No. 543 was placed into the bath for transfer to the large cylinder and the operators had begun to tie in the adjacent cylinder No. 632 when it was noticed that the first-mentioned cylinder had expanded and risen to the surface of the water. Both operators ran from the building just as cylinder No. 543 exploded. The explosion blew out the end of the other cylinder and windows of the building, wrecking equipment in general.

The exact cause of this explosion is not known. However, the explosion probably resulted from the reaction of the UF_6 and some unknown material, most likely hydrocarbon oil, in the cylinder which was being heated. The cylinder was thought to contain only UF_6 but some hydrocarbon oil had probably gotten into the cylinder since it had previously been used in the Barrier Research Pilot Plant in K-1401 where such a possibility definitely existed.

The entire contents of cylinder No. 543 were lost and cylinder No. 632 damaged to such an extent that the major portion of the contents of this cylinder was released. A general decontamination program was conducted but recovery was minor since most of the material was lost to the atmosphere. Unfortunately, the recovered material was mixed with decontaminated recoveries from other areas and a definite accounting cannot be made. However, the total was very small and it is felt that the total contents of the two cylinders should be shown as a known loss.

This total known loss of 83,197 grams uranium and 592 grams uranium-235 will be credited to the 200 account.

H. G. Grisham

H. G. Grisham

Approved S. S. Stief

S. S. Stief

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

K-70033

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE December 29, 1953

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 15-A Material Release, Report No. 140

KP-303, Part 57

Date of Release	December, 1953
Location of Release	Vault 15-A
Balance Area Account No.	920
Material	Contaminated Waste Solution
Class or Assay	C-935
Amount of Material Involved	198.40 liters
Equipment	Drum No. E-702
Source of Information	N. Weasner

Details: Known loss of known quantity

Sometime early in December, 1953, a leak developed in drum No. E-702, containing waste solution, releasing the entire contents of the drum. The release was caused by the corrosive action of the waste solution on the drum. No recovery was made since the contents were released and lost several days before discovery. The entire contents of the drum, 30 grams uranium and no uranium-235, will be carried as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE February 8, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. D. C. Brater
Mr. W. D. McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-1401 Material Release, Report No. 141

KP-303, Part 58

E-71149

Date of Release	October, November, December, 1953
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B" and "C"
Amount of Material Involved	1,330 grams uranium
Equipment	K-29 and K-31 converters
Source of Information	R. G. Nicol

Details: Known loss of calculated quantity

During the second quarter of fiscal year 1954, a total of ten K-31 converters and three K-29 converters were removed from service and sent to K-1401 for decontamination. These converters contained ruptured tubes and had to be decontaminated before being retubed.

These converters were fluorinated at high temperatures in the furnace stands for a period of two or three hours and the recovered UF_6 vented to the atmosphere. Sufficient data were taken to calculate the recovered UF_6 for each converter. Uranium-235 was calculated by the application of the proper assay to the recovery from each unit. Assays were obtained from the appropriate monthly gradients. These assays ranged from 1.175% to 3.500%. A calculated quantity of 1,330 grams uranium and 26 grams uranium-235 was released to the atmosphere from the thirteen fluorinated converters during the second quarter of fiscal year 1954.

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The above quantity of material will be carried as a known loss and credited to the 200 account since this material moved from K-29 and K-31 to K-1401 without a paper transfer.

H. G. Grisham

H. G. Grisham

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S. S. Stief

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TO / Mr. J. A. Parsons
LOCATION K-303-8

DATE February 8, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling (K25RC)
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 142

KP-303, Part 59

E-7148

Date of Release	December 29, 1953
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Contaminanted Laboratory Waste
Class or Assay	"B"
Amount of Material Involved	535.25 liters
Equipment	Drums Nos. R-2078, R-2114, E-1090, E-1093
Source of Information	N. Weasner

Details: Known loss of known quantity

On December 29, 1953, leaks were discovered in the following drums in Vault 16-A: R-2078, R-2114, E-1090, and E-1093. These drums contained 535.25 liters of contaminated laboratory waste solution. These leaks resulted from the corrosive action of the acid solution on the drums. These drums originally contained 3,097 grams uranium and 39 grams uranium-235. Through decontamination, a recovery of 491 grams uranium and 5 grams uranium-235 was effected. The difference between the original contents of the drums and the recovery, 2,606 grams uranium and 34 grams uranium-235, will be carried as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

HGG:em

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S. S. Stief

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TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE February 8, 1954

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Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 143

KP-303, Part 60

E-71147

Date of Release	December 17, 1953
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Contaminated Laboratory Waste
Class or Assay	C-935
Amount of Material Involved	196.53 liters
Equipment	Drum Nos. R-2625, R-2699
Source of Information	N. Weasner

Details: Known loss of known quantity

On December 17, 1953, leaks were discovered in drums No. R-2625 and No. R-2699 located in Vault 16-A. These drums contained laboratory waste solution to the extent of 1,948 grams uranium and 21 grams uranium-235. These leaks developed from the reaction of the acid solution on the walls of the drums. Through decontamination, a recovery of 1,108 grams uranium and 15 grams uranium-235 was made. The difference between the original contents of the drums and the recovery, 840 grams uranium and 6 grams uranium-235, will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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LOCATION K-303-8

DATE February 8, 1954

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COPY TO Mr. J. W. Arendt
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Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 15-A Material Release, Report No. 144

KP-303, Part 61

E-71146

Date of Release	January 5, 1954
Location of Release	Vault 15-A
Balance Area Account No.	920
Material	Water Solution
Class or Assay	C-635
Amount of Material Involved	207.36 liters
Equipment	Drum No. E-1237
Source of Information	N. Weasner

Details: Known loss of known quantity

On January 5, 1954, drum No. E-1237 in Vault 15-A developed a leak as a result of the corrosive action of the solution on the drum. The entire contents of the drum were released and no recovery was made. The total release of 784 grams uranium and 5 grams uranium-235 will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE March 8, 1954

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
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Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 145

KP-303, Part 62

Date of Release	January 11, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	C-635
Amount of Material Involved	101.39 liters
Equipment	Drum No. R-1802
Source of Information	N. Weasner

Details: Known loss of known quantity

On January 11, 1954, a leak was discovered in drum No. R-1802 located in Vault 16-A. This drum originally contained laboratory waste solution to the extent of 15,896 grams uranium and 103 grams uranium-235. This leak developed as a result of the corrosive action of the solution on the drum. A recovery of 1,288 grams uranium and 9 grams uranium-235 was effected through decontamination. The difference between the original contents of the drum and the recovery, 14,608 grams uranium and 94 grams uranium-235, will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

HGG:em

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S. S. Stief

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LOCATION K-303-8

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COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

DATE March 8, 1954

ANSWERING LETTER DATE

SUBJECT Vault 16-A Material Release, Report No. 146

KP-303, Part 63

Date of Release	January 6, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	C-935
Amount of Material Involved	104.85 liters
Equipment	Drum No. 2847
Source of Information	N. Weasner

Details: Known loss of known quantity

Drum No. 2847, located in Vault 16-A, developed a leak on January 6, 1954, as a result of the chemical reaction of the contained solution and the walls of the drum. This drum originally contained 833 grams uranium and 13 grams uranium-235. A recovery of 226 grams uranium and 3 grams uranium-235 was made. The difference between the original contents and the recovery, 607 grams uranium and 10 grams uranium-235, will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

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Mr. M. F. Schwenn
Mr. H. G. P. Snyder

DATE March 8, 1954

ANSWERING LETTER DATE

SUBJECT Vault 16-A Material Release, Report No. 147

KP-303, Part 64

Date of Release	January 19, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	C-835
Amount of Material Involved	108.97 liters
Equipment	Drum No. R-2844
Source of Information	N. Weasner

Details: Known loss of known quantity

On January 19, 1954, drum No. R-2844, located in Vault 16-A, developed a leak as a result of the corrosive action of the acid solution on the walls of the drum. Prior to the leak, the drum contained 130 grams uranium and 2 grams uranium-235. A recovery of 79 grams uranium and 1 gram uranium-235 was effected through decontamination. The difference between the original contents of the drum and the recovery, 51 grams uranium and 1 gram uranium-235, will be carried as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE April 9, 1954

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 148

KP-303, Part 65

Date of Release	February 19, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	C-935, 1.725%
Amount of Material Involved	110.77 liters
Equipment	Drum No. R-2695
Source of Information	N. Weasner

Details: Known loss of known quantity

On February 19, 1954, drum No. 2695, located in vault 16-A, developed a leak as a result of the corrosive action of the contents of the drum on the walls of the drum. This leak resulted in a loss of 44 grams uranium and 1 gram uranium-235. Since there was no recovery, this quantity will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 9, 1954

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ATTENTION
COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 15-A Material Release, Report No. 149

KP-303, Part 66

Date of Release	March 8, 1954
Location of Release	Vault 15-A
Balance Area Account No.	920
Material	Water solution
Class or Assay	C-635
Amount of Material Involved	116.0 liters
Equipment	Drum No. R-2185
Source of Information	N. Weasner

Details: Known loss of known quantity

On March 8, 1954, drum No. R-2185, located in vault 15-A, developed a leak and released the contents to the floor. This leak was caused by the chemical reaction of the solution with the walls of the drum. The drum originally contained 3,909 grams uranium and 26 grams uranium-235. Through decontamination, a recovery of 760 grams uranium and 5 grams uranium-235 was made. The difference, 3,149 grams uranium and 21 grams uranium-235, will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

HGG:em

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S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 9, 1954

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ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
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Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 150

KP-303, Part 67

Date of Release	March 8, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Carbitol and Laboratory Waste
Class or Assay	C-635 and C-935
Amount of Material Involved	207.40 liters
Equipment	Drums No. R-1996 and No. R-2083
Source of Information	N. Weasner

Details: Known loss of known quantity

On March 8, 1954, drums No. R-1996 and No. R-2083, located in vault 16-A, were found to have developed leaks as a result of the chemical reaction of the contents with the walls of the drums. The drums contained 1,675 grams uranium and 14 grams uranium-235 before the leak developed. A recovery, through decontamination, of 482 grams uranium and 4 grams uranium-235 was effected. The difference of 1,193 grams uranium and 10 grams uranium-235 will be shown as a known loss and credited to the 920 account.

H. G. Grisham

H. G. Grisham

Approved: S. S. Stief

S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 9, 1954

ANSWERING LETTER DATE

ATTENTION
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Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 151

KP-303, Part 68

Date of Release	March 8, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Carbitol solution
Class or Assay	C-1035
Amount of Material Involved	118.53 liters
Equipment	Drum No. E-1089
Source of Information	N. Weasner

Details: Known loss of known quantity

A measured loss of 46 grams uranium and 1 gram uranium-235 was experienced on March 8, 1954, in vault 16-A through a re-packaging operation of the contents of drum No. E-1089. This quantity will be carried as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

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WCX-163 (3-51)

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F44686

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 29, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 152

KP-303, Part 69

Date of Release	March 21, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory waste, carbitol, and iodate solutions
Class or Assay	"B" and "C"
Amount of Material Involved	1,002.13 liters
Equipment	Storage drums
Source of Information	N. Weasner

Details: Known loss of known quantity

Due to the chemical reaction between the walls of the drums and the contents therein, the following drums developed leaks which were discovered on March 21, 1954: R-3002, R-2919, R-2974, R-2970, R-2857, R-2861, R-2978, R-2968, and R-2972. These drums, prior to developing leaks, contained 6,683 grams uranium and 108 grams uranium-235 of varying assays ranging from 0.750% to 10.750%. Through extensive decontamination, a recovery of 3,574 grams uranium and 80 grams uranium-235 was effected. This recovery was made in 11 drums with assays varying from 0.868% to 4.965%. Since it was impossible to segregate the recovery into the material classifications as was originally shown in the drums prior to the releases, the difference between the total original contents of the drums and the recovery will be shown as one material classification in the known release. This known loss of 3,109 grams uranium and 28 grams uranium-235 will be credited to the 920 account.

H. G. Grisham
H. G. Grisham

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO √Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION
COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

DATE April 29, 1954

ANSWERING LETTER DATE

SUBJECT Vault 16-A Material Release, Report No. 153

KP-303, Part 70

Date of Release	March 31, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory waste solution
Class or Assay	Class "B"
Amount of Material Involved	101.06 liters
Equipment	Drum R-2931
Source of Information	N. Weasner

Details: Known loss of known quantity

On March 31, 1954, a leak was discovered in storage drum No. R-2931, located in vault 16-A, which had resulted from the corrosive action of the acid waste solution on the walls of the drum. The original content of the drum was 165 grams uranium and 3 grams uranium-235. A recovery of 84 grams uranium and 1 gram uranium-235 was made. The difference, a known loss of 81 grams uranium and 2 grams uranium-235, will be credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

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TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE April 29, 1954

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 15-A Material Release, Report No. 154

KP-303, Part 71

Date of Release	March 29, 1954
Location of Release	Vault 15-A
Balance Area Account No.	920
Material	Nitric acid solution
Class or Assay	Class "B"
Amount of Material Involved	182.19 liters
Equipment	Drum No. E-2069
Source of Information	N. Weasner

Details: Known loss of known quantity

On March 29, 1954, a leak was discovered in drum No. E-2069, located in vault 15-A, which contained 182.19 liters of nitric acid solution. This acid solution had corroded the walls of the drum with a resultant leak. The drum contained 736 grams uranium and 5 grams uranium-235 before the spill. A recovery of 58 grams uranium and no uranium-235 was effected. The difference of 678 grams uranium and 5 grams uranium-235 will be carried as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 29, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 17-A Material Release, Report No. 155

KP-303, Part 72

Date of Release	March 30, 1954
Location of Release	Vault 17-A
Balance Area Account No.	920
Material	Ammonium filtrate solution
Class or Assay	Class "B"
Amount of Material Involved	65.00 liters
Equipment	Drum No. R-2965
Source of Information	N. Weasner

Details: Known loss of known quantity

On March 30, 1954, drum No. R-2965, located in vault 17-A, was discovered to have developed a leak as a result of the corrosive action of the contents of the drum on the walls. The drum contained 3 grams uranium and no grams uranium-235 before the spill. Through decontamination, 1 gram uranium was recovered. This known loss of 2 grams uranium will be credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 29, 1954

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 156

KP-303, Part 73

Date of Release	April 6, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory waste solution
Class or Assay	"C"
Amount of Material Involved	219.25 liters
Equipment	Drums No. R-2580 and No. R-2585
Source of Information	N. Weasner

Details: Known loss of known quantity

Leaks were discovered in drums No. R-2580 and No. R-2585, located in vault 16-A, on April 6, 1954. These drums developed leaks as a result of the chemical reaction of the contents on the walls of the drums. The drums originally contained 397 grams uranium and 9 grams uranium-235. Through decontamination, a recovery of 190 grams uranium and 4 grams uranium-235 was effected. The difference, a known loss of 207 grams uranium and 5 grams uranium-235, will be credited to the 920 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 30, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. D. C. Brater
Mr. W. D. McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT K-1401 Material Release, Report No 157

KP-303, Part 74

Date of Release	January, February, March, 1954
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B", "C", and "D"
Amount of Material Involved	8,325 grams uranium
Equipment	K-29, K-31, and K-304-3 Converters
Source of Information	R. G. Nicol

Details: Known loss of calculated quantity

During the third quarter of fiscal year 1954, a total of ten K-31 converters, seven K-29 converters, and four K-304-3 converters were decontaminated at K-1401. These converters were fluorinated at high temperatures in the furnace stands for a period of two or three hours and the recovered UF_6 was vented to the atmosphere. Sufficient data were taken to calculate the recovered quantity of UF_6 for each converter. The uranium-235 was calculated by applying the proper assay to the recovery from the unit. Assays were obtained from the appropriate monthly gradients. These assays ranged from 1.100% to 15.000%. A calculated quantity of 8,325 grams uranium and 303 grams uranium-235 was released to the atmosphere from the twenty-one fluorinated converters during the third quarter of fiscal year 1954. This quantity of material will be carried as a known loss and credited to the 200 account since it was transferred from the cascade without proper credit being given due to the fact that there was no means of determining the extent of the deposit in the converters at the time of transfer.

H. G. Grisham
H. G. Grisham

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INTER-COMPANY CORRESPONDENCE F 44670

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 30, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. C. L. Gritzner
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson

SUBJECT K-1410 Material Release, Report No. 158

KP-303, Part 75

Date of Release	April 10, 1954
Location of Release	K-1410
Balance Area Account No.	360
Material	Water solution
Class or Assay	19.66%
Amount of Material Involved	7.25 liters
Equipment	Container No. 373-8
Source of Information	D. R. Carson

Details: Known loss of known quantity

On April 10, 1954, a leak was discovered in an "always safe" container, No. 373-8, in K-1410. This leak had developed as a result of the corrosive action of the water solution on the walls of the container. This container had 129 grams uranium and 25 grams uranium-235. This release apparently occurred several days before discovery and was washed away. Hence no decontamination recovery was made. The total contents will be carried as a known loss and credited to the 360 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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TO ✓Mr. J. A. Parsons
LOCATION K-303-8

DATE April 30, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Boling K25RC
Mr. C. L. Gritzner
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson

SUBJECT K-131 Material Release, Report No. 159

KP-303, Part 76

Date of Release	April 5, 1954
Location of Release	K-131
Balance Area Account No.	340
Material	Nitric acid solution
Class or Assay	"A" and "B"
Amount of Material Involved	278.688 liters
Equipment	Drum Nos. E-2071 and R-2581
Source of Information	D. R. Carson

Details: Known loss of known quantity

On April 5, 1954, leaks were discovered in two drums, located in K-131, which had resulted from the corrosive action of the nitric acid solution on the walls of the polyethylene lined drums. These two drums with the original contents are shown below:

Drum No.	Contents, liters	Analysis	Grams U	Assay	Grams U-235
E-2071	199.68	320.5 g/l	63,997	0.682	436
R-2581	79.008	242.8 g/l	19,183	0.920	176

The respective recovery through decontamination of these two drums follows:

Recovered in Drum No.	Contents, liters	Analysis	Grams U	Assay	Grams U-235
E-171	94.72	246.2 g/l	23,320	0.680	159
5514	64.01	60.5 g/l	3,873	0.902	35

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The difference between the original contents of the drums and the recovery through decontamination will be shown as a known loss and credited to the 340 account. A breakdown of this known loss of 55,987 grams uranium and 418 grams uranium-235 by material classification is shown below:

Material Classification	Grams U	Assay	Grams U-235
635	40,677	0.682	277
835	15,310	0.920	141
Total	55,987		418

H. G. Grisham
H. G. Grisham

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S. S. Stief

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F-4512-C

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE May 5, 1954

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. E. J. Boling K25RC
Mr. J. Dykstra
Mr. J. A. Marshall
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson

SUBJECT K-1303 Material Release, Report No. 160

KP-303, Part 77

Date of Release	April 18, 1954
Location of Release	K-1303
Balance Area Account No.	650
Material	Evaporator Concentrate
Class or Assay	"B", 0.959%
Amount of Material Involved	106.99 liters
Equipment	R-2105
Source of Information	D. R. Carson

Details: Known loss of known quantity

On April 18, 1954, a leak was discovered in drum No. R-2105, located in K-1303. This leak developed as a result of the corrosive action of the solution on the walls of the polyethylene lined drum. This drum originally contained 1,198 grams uranium and 11 grams uranium-235. Since there was no recovery through decontamination, this total quantity will be carried as a known loss and credited to the 650 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE June 2, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 161

KP-303, Part 78

Date of Release	April 13, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory waste
Class or Assay	Class "B"
Amount of Material Involved	208.38 liters
Equipment	Drums Nos. R-2272 and R-3029
Source of Information	N. Weasner

Details: Known loss of known quantity

On April 13, 1954, leaks were discovered in drums No. R-2272 and No. R-3029 which were located in vault 16-A. These leaks resulted from the chemical reaction of the contents of the drum with the walls of the drums. These drums contained 1,568 grams uranium and 27 grams uranium-235 before the release. Through decontamination, a recovery of 1,162 grams uranium and 19 grams uranium-235 was effected. The difference, 406 grams uranium and 8 grams uranium-235, will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

F44942

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE June 2, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 162

KP-303, Part 79

Date of Release	May 11, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Iodate Solution
Class or Assay	Class "B"
Amount of Material Involved	194.45 liters
Equipment	Drum No. E-2058
Source of Information	N. Weasner

Details: Known loss of known quantity

As a result of the corrosive action of the acid solution on the walls of the drum, drum No. E-2058, located in vault 16-A, developed a leak on May 11, 1954. This drum contained 2,100 grams uranium and 28 grams uranium-235 before the leak developed. Through decontamination, a recovery of 1,134 grams uranium and 15 grams uranium-235 was made. The difference, 966 grams uranium and 13 grams uranium-235, will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE July 27, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

SUBJECT Vault 16-A Material Release, Report No. 163

KP-303, Part 80

Date of Release	May 26, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	Class "A"
Amount of Material Involved	16.0 liters
Equipment	Drum No. G-1553
Source of Information	N. Weasner

Details: Known loss of known quantity

As a result of the corrosive action of the acid laboratory waste solution on the walls of the drum, drum No. G-1553, located in vault 16-A, developed a leak which was discovered May 26, 1954. This drum originally contained 52 grams uranium and 0 grams uranium-235. Through decontamination, a recovery of 44 grams uranium was effected, leaving a measured loss of 8 grams uranium and 0 grams uranium-235. This amount will be shown as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION
COPY TO Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
✓ Mr. G. T. E. Sheldon
Mr. H. G. P. Snyder

DATE July 27, 1954

ANSWERING LETTER DATE

SUBJECT K-306-7 Material Release, Report No. 164

KP-303, Part 81

Date of Release	June 11, 1954
Location of Release	K-306-7 Product Purification Unit
Balance Area Account No.	200
Material	UF_6
Class or Assay	2935, 93.15%
Amount of Material Involved	15 grams UF_6
Equipment	Product Purification Unit
Source of Information	G. T. E. Sheldon

Details: Known loss of estimated quantity

On June 6, 1954, a small release occurred at the K-306-7 product purification unit when a visible amount of UF_6 escaped through the product drain line valve. Supervisory personnel estimated the release at 10 grams uranium and 9 grams uranium-235. Since no recovery was effected, this total quantity will be shown as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO / Mr. J. A. Parsons
LOCATION K-303-8

DATE July 27, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. C. Barton
Mr. E. J. Boling
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. R. J. Wertz

SUBJECT K-1004-A Material Release, Report No. 165

KP-303, Part 82

Date of Release	June 29, 1954
Location of Release	K-1004-A
Balance Area Account No.	845
Material	UF_6
Class or Assay	Class "G", 93.15%
Amount of Material Involved	83 grams UF_6
Equipment	Sample tube
Source of Information	R. J. Wertz

Details: Known loss of known quantity

On June 29, 1954, while attempting to liquefy the contents of a product freeze point sample cylinder in order to obtain a sub-sample, the thermowell weld released and a quantity of 83 grams UF_6 escaped to hood in K-1004-A. The tube originally contained 53 grams uranium and 49 grams uranium-235. A recovery of 3 grams uranium and 3 grams uranium-235 was made. The difference, a measured loss of 50 grams uranium and 46 grams uranium-235, will be shown as a known loss and credited to the 845 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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INTER-COMPANY CORRESPONDENCE

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TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION
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Mr. W. D. McCluen
Mr. M. F. Schwenn
✓ Mr. G. T. E. Sheldon
Mr. H. G. P. Snyder

DATE July 27, 1954

ANSWERING LETTER DATE

SUBJECT K-306-7 Material Release, Report No. 166

KP-303, Part 83

Date of Release	June 30, 1954
Location of Release	K-306-7 Product Purification Unit
Balance Area Account No.	200
Material	UF_6
Class or Assay	Class "G", 93.15%
Amount of Material Involved	190 grams UF_6
Equipment	Product sample tube
Source of Information	G. T. E. Sheldon

Details: Known loss of known quantity

On June 30, 1954, while taking a sample from the product drain line, the sample tube became overloaded with 190 grams UF_6. In attempting to return part of the sample, the sample line became plugged, causing the thermowell weld to release with a loss of the entire contents of the tube. No recovery was effected. The entire quantity of 128 grams uranium and 119 grams uranium-235 will be carried as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

HGG:em

Approved: S. S. Stief
S. S. Stief

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F60877

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

ATTENTION
COPY TO Mr. E. J. Boling K25RC
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. J. G. Smith
Mr. H. G. P. Snyder
Mr. B. H. Thompson

DATE July 27, 1954

ANSWERING LETTER DATE

SUBJECT K-633 Material Release, Report No. 167

KP-303, Part 84

Date of Release	June 21, 1954
Location of Release	K-633
Balance Area Account No.	530
Material	K-25 tails
Class or Assay	Class "A", 0.658%
Amount of Material Involved	50 pounds UF_6
Equipment	Cylinder No. ERD 6D91-2374
Source of Information	L. H. Gooch

Details: Known loss of estimated quantity

On June 21, 1954, a material release occurred in K-633 as a result of a partial plug in the cylinder valve which caused the pigtail to disconnect and prevented the valve from seating. The extent of this release accumulated with time. The cylinder was hot and in a liquid state, preparatory to being sampled. Some material was lost down the drain when water was sprayed on the valve to freeze it. Most of the remaining portion of the release was exhausted to the atmosphere. Supervisory personnel estimated the loss at 50 pounds UF_6. Since no recovery was effected, the total loss of 15,336 grams uranium and 101 grams uranium-235 will be shown as a known loss and credited to the 530 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO ✓Mr. J. A. Parsons
LOCATION K-303-8

DATE February 2, 1955

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. R. R. Frazier (2) K25RC
Mr. E. C. Johnson
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. W. E. Tewes
File (H. G. Grisham)

SUBJECT K-1401 Material Release, Report No. 168

KP-303, Part 85

Date of Release	May 30, 1954
Location of Release	K-1401
Balance Area Account No.	870
Material	Normal feed
Class or Assay	"B"
Amount of Material Involved	1,000 grams U
Equipment	Valve failure
Source of Information	W. E. Tewes

Details: Known loss of estimated quantity.

On May 30, 1954, a material release occurred in the twenty-stage pilot plant in K-1401 as a result of a faulty valve. This loss was estimated at 1,000 grams uranium and 7 grams uranium-235. As there was no recovery, the entire release will be carried as a known loss and credited to the 870 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE December 14, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. E. J. Barber
Mr. R. R. Frazier K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-1004-D Material Release, Report No. 169

KP-303, Part 86

Date of Release	May 20, 1954
Location of Release	K-1004-D
Balance Area Account No.	850
Material	UF_6
Class or Assay	"B"
Amount of Material Involved	200 grams UF_6
Equipment	Cold trap
Source of Information	E. J. Barber

Details: Known loss of estimated quantity

On May 20, 1954, as a result of temperature differential, a glass cold trap broke and released its contents, estimated to be 200 grams UF_6. No recovery was effected. This estimated loss of 135 grams uranium and 1 gram uranium-235 will be shown as a measured loss and credited to the 850 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE September 23, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. E. J. Boling K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder

M. F. SCHWENN
1954 SEP 24 PM 2:07

SUBJECT Vault 16-A Material Release, Report No. 170

KP-303, Part 87

Date of Release	August 16, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	Class "B"
Amount of Material Involved	204.27 liters
Equipment	Drums Nos. R-2973 and R-2976
Source of Information	N. Weasner

Details: Known loss of known quantity.

As a result of the corrosive action of the acid laboratory waste solution on the walls of drums No. R-2973 and No. R-2976, located in vault 16-A, leaks developed and released the contents. These drums originally contained 268 grams uranium and 5 grams uranium-235. A recovery of 216 grams uranium and 3 grams uranium-235 was effected through decontamination, leaving a measured loss of 52 grams uranium and 2 grams uranium-235 which will be carried as a known loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE February 2, 1955
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ATTENTION
COPY TO Mr. R. R. Frazier (2) K25RC
Mr. E. C. Johnson
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. W. E. Tewes
File (H. G. Grisham)

SUBJECT K-1401 Material Release, Report No. 171

KP-303, Part 88

Date of Release	August 2, 1954
Location of Release	K-1401
Balance Area Account No.	870
Material	Normal feed
Class or Assay	"B"
Amount of Material Involved	500 gms. U
Equipment	Feed line
Source of Information	W. E. Tewes

Details: Known loss of estimated quantity.

On August 2, 1954, a material release occurred in the twenty-stage pilot plant in K-1401 as a result of a failure in the feed line. This loss was estimated at 500 grams uranium and 4 grams uranium-235. Since there was no recovery, this total release will be shown as a known loss and credited to the 870 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGGrem

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TO ✓Mr. J. A. Parsons
LOCATION K-303-8

DATE December 14, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. R. H. Dyer
Mr. R. R. Frazier K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-631 Material Release, Report No. 172

KP-303, Part 89

Date of Release	August 30, 1954
Location of Release	K-631
Balance Area Account No.	200
Material	UF_6
Class or Assay	Class "A"
Amount of Material Involved	10 lbs. UF_6
Equipment	Beach-Russ pump
Source of Information	L. W. Magnusson

Details: Known loss of estimated quantity

On August 30, 1954, while the oil was being replaced in a Beach-Russ pump in K-631, a release of approximately ten pounds occurred. The oil was contaminated and, due to a rupture in the flexible connection, the release of the material occurred. This loss of 3,067 grams uranium and 22 grams uranium-235 will be carried as a measured loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

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TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE December 14, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. D. C. Brater
Mr. R. R. Frazier K25RC
Mr. W. D. McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-1401 Material Release, Report No. 173

KP-303, Part 90

Date of Release	April 1 through September 30, 1954
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B" and "C"
Amount of Material Involved	10,855 grams uranium
Equipment	K-29, K-31, and K-309-1 Converters
Source of Information	R. G. Nicol

Details: Known loss of calculated quantity.

During the last quarter of fiscal year 1954 and the first quarter of fiscal year 1955, a total of seventeen K-31 converters, seven K-29 converters, and two K-309-1 converters were decontaminated at K-1401. These converters were fluorinated at high temperatures in the furnace stands for a period of two or three hours and the recovered UF_6 was vented to the atmosphere. Sufficient data were taken to calculate the recovered UF_6 for each converter. The uranium-235 was calculated by applying the proper assay to the recovery from each unit. Assays were obtained from the appropriate monthly gradients. These assays ranged from 1.000% to 9.500%. A calculated quantity of 10,855 grams uranium and 315 grams uranium-235 was released to the atmosphere from the 26 converters which were decontaminated during this six-month period. This quantity of material will be carried as a known loss and credited to the 200 account since the material was transferred from the cascade on the converters without proper credit being given to the cascade as there was no means of determining the extent of the deposit on the converters until after decontamination.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE February 2, 1955

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. I. C. Flanders
Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-1004-L Material Release, Report No. 174

KP-303, Part 91

Date of Release	October 10, 1954
Location of Release	K-1004-L
Balance Area Account No.	540
Material	636
Class or Assay	"A"
Amount of Material Involved	10 pounds UF_6
Equipment	Seal
Source of Information	I. C. Flanders

Details: Known loss of estimated quantity.

On October 10, 1954, an estimated material release of ten pounds UF_6 occurred when a seal failed on a high pressure purge cell at the pilot plant laboratory in K-1004-L. There was no recovery since this material was vented to the atmosphere. This total release of 3,067 grams uranium and 20 grams uranium-235 will be shown as a known loss and credited to the 540 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO ✓ Mr. J. A. Parsons
LOCATION K-303-8

DATE December 14, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. R. R. Frazier K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT Vault 16-A Material Release, Report No. 175

KP-303, Part 92

Date of Release	October 14, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	Class "A"
Amount of Material Involved	213.31 liters
Equipment	Drums Nos. R-3509, R-3512
Source of Information	J. W. Arendt

Details: Known loss of known quantity

As a result of the corrosive action of the laboratory waste solution on the walls of drums No. R-3509 and No. R-3512, located in vault 16-A, leaks developed and released the contents. The original content of these drums was to the extent of 953 grams uranium and 13 grams uranium-235. A recovery of 780 grams uranium and 5 grams uranium-235 was made, leaving a measured loss of 164 grams uranium and 8 grams uranium-235. This known loss will be credited to the 920 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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TO ✓Mr. J. A. Parsons
LOCATION K-303-8

DATE December 14, 1954

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COPY TO Mr. J. W. Arendt
Mr. R. R. Frazier K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT Vault 16-A Material Release, Report No. 176

KP-303, Part 93

Date of Release	November 8, 1954
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	"B"
Amount of Material Involved	66.0 liters
Equipment	Drum No. R-2929
Source of Information	J. Arendt

Details: Known loss of known quantity

A leak developed in drum No. R-2929, located in vault 16-A, as a result of the chemical reaction of the acid laboratory waste solution on the walls of the drum. This drum originally contained 368 grams uranium and 7 grams uranium-235. Through decontamination, a recovery of 94 grams uranium and 1 gram uranium-235 was effected, leaving a known loss of 274 grams uranium and 6 grams uranium-235. This will be carried as a measured loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

HGG:em

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S. S. Stief

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TO ✓Mr. J. A. Parsons
LOCATION K-303-8

DATE December 14, 1954

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. R. R. Frazier K25RC
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson
Mr. A. Varlan
File (H. G. Grisham)

SUBJECT K-1131 Material Release, Report No. 177

KP-303, Part 94

Date of Release	November, 1954
Location of Release	K-1131
Balance Area Account No.	550
Material	UF_6
Class or Assay	"A"
Amount of Material Involved	22,415 grams uranium
Equipment	K-1131 Vent Stack
Source of Information	Letter KP-737

Details: Known loss of calculated quantity.

During the month of November, 1954, Process Control Laboratory took routine vent stack gas samples to determine the extent of material which was vented to the atmosphere in K-1131. Using these sample results and a flow rate of 25 pounds per hour as a basis, a calculated loss of 22,415 grams uranium and 150 grams uranium-235 was vented to the atmosphere for the 29 days of K-1131 operation during the month. This quantity of material will be shown as a known loss and credited to the 550 account.

H. G. Grisham
H. G. Grisham

HGG:em

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S. S. Stief

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F-11752

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(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE January 18, 1955

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. G. T. E. Sheldon
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-306-7 Product Withdrawal Material Release, Report No. 178

KP-303, Part 95

Date of Release	October 14, 1954
Location of Release	K-306-7 Product Withdrawal
Balance Area Account No.	200
Material	UF_6
Class or Assay	"G", 2935
Amount of Material Involved	68 grams UF_6
Equipment	Process piping
Source of Information	G. T. E. Sheldon

Details: Known loss of estimated quantity

On October 14, 1954, the failure of valve No. 46, which is a cylinder valve on the manifold to the No. 3 withdrawal position, resulted in the release of an estimated 68 grams UF_6. Since there was no recovery, this total release of 46 grams uranium and 43 grams uranium-235 will be shown as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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F-11758

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TO ✓Mr. J. A. Parsons
LOCATION K-303-8

DATE January 18, 1955

ANSWERING LETTER DATE

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Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. G. T. E. Sheldon
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-306-7 Product Purification Unit Material Release, Report No. 179

KP-303, Part 96

Date of Release	December 13, 1954
Location of Release	K-306-7 Product Purification Unit
Balance Area Account No.	200
Material	UF_6
Class or Assay	"G", 2935
Amount of Material Involved	50 grams UF_6
Equipment	Valve bellows
Source of Information	G. T. E. Sheldon

Details: Known loss of estimated quantity

On December 13, 1954, a rupture in the bellows of a valve in one of the freeze-out lines in the K-306-7 Product Purification Unit resulted in a release of an estimated quantity of 50 grams UF_6. As there was no recovery, this total release of 34 grams uranium and 32 grams uranium-235 will be shown as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

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TO Mr. J. A. Parsons
LOCATION K-303-8

DATE January 18, 1955

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ATTENTION

COPY TO Mr. R. H. Dyer
Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-413 Material Release, Report No. 180

KP-303, Part 97

Date of Release	December 22, 1954
Location of Release	K-413
Balance Area Account No.	200
Material	UF_6
Class or Assay	1.30%
Amount of Material Involved	10 lbs. UF_6
Equipment	Beach-Russ pump
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity

K-413 was being used for condensation of material during the special withdrawal of 1.30% assay material which was withdrawn in late December, 1954. Two sets of Beach-Russ pumps were used for this operation. On December 22, 1954, one of the Beach-Russ pumps on the second stage of compression was causing difficulty. It was supposedly isolated and purged, preparatory to being removed for repair. While the rotor to the pump was being removed, a heavy cloud of process gas was released. Evidently, one of the valves to the pump was leaking, and, hence, admitting material to the pump which was thought to be isolated and purged. Supervisory personnel estimated a loss of 10 pounds UF_6. This release of 3,067 grams uranium and 40 grams uranium-235 will be carried as a known loss and credited to the 200 account.

H. G. Grisham
H. G. Grisham

HGG:sm

Approved: S. S. Stief
S. S. Stief

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TO ✓Mr. J. A. Parsons
LOCATION K-303-8

DATE January 21, 1955

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. D. C. Brater
Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-1401 Material Release, Report No. 181

KP-303, Part 98

Date of Release	October, November, and December, 1954
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"C"
Amount of Material Involved	815 grams uranium
Equipment	K-29 converters
Source of Information	R. G. Nicol

Details: Known loss of calculated quantity

During the second quarter of fiscal year 1955, a total of five K-29 converters were decontaminated at K-1401. In this operation, the converters were fluorinated at high temperatures in the furnace stands for a period of two or three hours, and the recovered UF_6 was vented to the atmosphere. Sufficient data were taken to calculate the recovered UF_6 for each converter. The uranium-235 was obtained by applying the proper assay to the recovery from each unit. These assays, obtained from the appropriate gradients, ranged from 3.430% to 5.750%. A calculated quantity of 815 grams uranium and 40 grams uranium-235 was vented to the atmosphere from these five converters during the quarter. This quantity of material will be shown as a known loss and credited to the 200 account since the material had been transferred from the cascade in the converters to K-1401 without credit being given the cascade for this material.

H. G. Grisham
H. G. Grisham

HGG:fn

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S. S. Stiel

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F 11991

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE February 2, 1955

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. J. W. Arendt
Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT Vault 16-A Material Release, Report No. 182

KP-303, Part 99

Date of Release	January 6, 1955
Location of Release	Vault 16-A
Balance Area Account No.	920
Material	Laboratory Waste
Class or Assay	"B" and "C"
Amount of Material Involved	2,250 grams U
Equipment	Drums Nos. E-2709 and E-3038
Source of Information	J. W. Arendt

Details: Known loss of known quantity

On January 6, 1955, two spills occurred in vault 16-A as a result of the chemical reaction of the acid laboratory waste solution on the walls of the two following drums. These drums, original contents, recovery, assays, and known losses are shown below:

	Original Contents		Recovery			Known Loss	
Drum No.	Grams U	Grams U-235	Grams U	Grams U-235	Assay	Grams U	Grams U-235
E-2709	220	6	195	5	2.775	25	1
E-3038	3,030	22	1,593	17	1.084	437	5
Total	2,250	28	1,788	22		462	6

This known loss of 462 grams uranium and 6 grams uranium-235 will be carried as a measured loss and credited to the 920 account.

H. G. Grisham
H. G. Grisham

HGG:em

RESTRICTED DATA

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Approved: S. S. Stief
S. S. Stief

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WCX-163 (3-51)

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE March 17, 1955

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. G. T. E. Sheldon
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-306-7 Product Purification Unit Material Release, Report No. 183

KP-303, Part 100

Date of Release	January 21, 1955
Location of Release	K-306-7 Product Purification Unit
Balance Area Account No.	200
Material	UF_6
Class or Assay	"G", 2935
Amount of Material Involved	200 grams UF_6
Equipment	Valve bellows
Source of Information	G. T. E. Sheldon

Details: Known loss of estimated quantity.

On January 21, 1955, a material release occurred in the K-306-7 product purification unit as a result of the rupture in the bellows of the drain valve on the No. 4 freeze-out position. At the time of the rupture, the valve was in a closed position. This rupture resulted in an estimated release of 200 grams UF_6. The surrounding area was decontaminated, with a recovery of 107 grams uranium and 100 grams uranium-235 being effected. This leaves a known loss of 28 grams uranium and 26 grams uranium-235 which will be credited to the 200 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

HGG:em

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K-199

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 7, 1955

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. L. L. Anthony
Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-33 Feed Room
Material Release,
Report No. 184

KP-303, Part 101

Date of Release	March 10, 1955
Location of Release	K-33 Feed Room
Balance Area Account No.	150
Material	UF_6
Class or Assay	Normal Feed, 0.7115
Amount of Material Involved	Approximately 500 pounds
Equipment	Cylinders Nos. 309-A and 624
Source of Information	J. W. Arendt

Details: Known loss of calculated quantity

On March 10, 1955, the line on cylinder No. 309-A, which was feeding from A-2 bath, blew out. The valve to the feed header from the A-2 bath was closed by the operator. All feed was cut off by process gas release controls four minutes after the line blew out. All side feed cylinders in the A baths were valved off and the heat removed from them. The feed room was in the process of being decontaminated when, six hours later, cylinder No. 624, which was in A-3 bath and cooling, exploded violently. Cylinder No. 624 was blown to bits and extensive damage was done to the feed room in general. All feed to the cascade was cut off shortly after the explosion. There is good reason to believe that the explosion resulted from the presence of hydrocarbon oil in the feed cylinders as evidenced by the carbon deposits which were found on particles after the explosion. These cylinders had been filled at points within the K-25 plant with a good possibility of the hydrocarbon oil being picked up in small quantities.

Cylinder No. 309-A, which was iced down after the line blew out, had a weight of 348 pounds before feeding and 272 pounds after the release. This cylinder had been feeding two hours and an estimated 50 pounds had been fed, leaving 26 pounds which was released.

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Cylinder No. 624 was blown to bits by the explosion and the entire contents of this cylinder, 471 pounds, was released. After the explosion the entire feed room was thoroughly decontaminated, requiring approximately one week.

Shown below are the released quantities from each cylinder, along with the total recovery:

Cylinder No.	Release Grams U	Grams U-235
309-A	7,975	57
624	144,571	1,029
Total Release	152,546	1,086
Total Recovery	7,731	58
Unaccounted-for Release	144,815	1,028

This unaccounted-for release of 144,815 grams U and 1,028 grams U-235 will be shown as a known loss and credited to the 150 account.

H. G. Grisham
H. G. Grisham

Approved: S. S. Stief
S. S. Stief

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Y6795

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 18, 1955

ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. R. R. Frazier (2) K25RC
Mr. J. A. Marshall
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
Mr. B. H. Thompson
Mr. A. Varlan
File (H. G. Grisham)

SUBJECT K-1131 Material Release, Report No. 185

KP-303, Part 102

Date of Release	August 5, 1951
Location of Release	K-1131
Balance Area Account No.	150
Material	Normal UF_6
Class or Assay	Normal Feed, 0.7115%
Amount of Material Involved	4,734 pounds UF_6
Equipment	Cylinder No. D-21157
Source of Information	K. P. Moseley, D. R. Carson

Details: Known loss of measured quantity.

Cylinder No. D-21157, a one-ton chlorine type cylinder, was manufactured according to specifications for such type shipping cylinders and pressure tested at 550 psig. in June, 1951, without leak. It was filled with 4,734 pounds of UF_6 at the K-1131 feed plant during early July, 1951, and transferred to storage on July 9, 1951. On August 3, 1951, it was returned to the feed plant to be fed to the cascade.

The transfer unit at K-1131 consisted of an electrically heated furnace in which the cylinder is heated for a period of approximately 8 hours to liquefy the material for feeding to the cascade. A pressure recorder controller was set to cut off the furnace heaters when the cylinder pressure reached 70 psig. and thus prevent overheating even if the unit were left unattended for several hours. The cylinder was placed in the furnace at 0130, August 5, 1951, for heating. In two hours the cylinder pressure had risen to 42 psig. and then remained constant for the next 19 hours, until the cylinder ruptured at 2225.

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The cause of the rupture was found to be excessive hydraulic pressure in the cylinder which resulted from overheating due to the failure of the operational control equipment. After the rupture, a leak was discovered in the line between the pressure transmitter and the pressure recorder controller, and the line from the cylinder to the transmitter was found to be plugged. These line difficulties prevented proper control of the furnace heaters, and with no control over the heating, the cylinder pressure increased to such an extent as to cause the end of the cylinder to be pushed out with a release of material.

This cylinder was then capped with end plates and transferred to storage. On December 18, 1951, the cylinder was returned to K-1131 and fed to the cascade. The empty cylinder then remained at K-1131 until it was transferred to storage on November 10, 1952. On May 12, 1953, the cylinder was transferred to K-1410 for decontamination. It remained there for several months and was finally, in late 1954, transferred to the hot salvage yard, according to reports from Chemical Operations personnel.

Through a knowledge of the gross and tare weights of the cylinder before the release, the gross weight after the release and with addition of end plates, and the tare weight after the cylinder had been fed out, a calculated material release of 99 pounds UF_6 was found to have occurred. This known loss of 30,365 grams uranium and 216 grams uranium-235 will be shown as a measured loss and credited to the 150 account.

H. G. Grisham

H. G. Grisham

Approved: S. S. Stief

S. S. Stief

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INTER-COMPANY CORRESPONDENCE

D 6969

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 27, 1955

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. R. H. Dyer
Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-631 Material Release, Report No. 186

KP-303, Part 103

Date of Release	March 16, 1955
Location of Release	K-631
Balance Area Account No.	120
Material	UF_6
Class or Assay	"A"
Amount of Material Involved	10 pounds UF_6
Equipment	Elliott pump
Source of Information	R. H. Dyer

Details: Known loss of estimated quantity.

At 0815, March 16, 1955, the seal on the "A" Elliott pump in K-631 failed with a resultant material release since the pump runs at a pressure higher than atmospheric. At 0855, an operator in an impermeable suit was able to go into the room, close the discharge valve on the pump, and stop the release. This situation has now been corrected so that the valve can be closed from outside the room.

An estimated quantity of 10 pounds UF_6 was released in this period of forty minutes. The surrounding area was decontaminated with a recovery of 55 grams uranium and less than one-half gram uranium-235. The actual estimated loss of 3,012 grams uranium and 15 grams uranium-235 will be shown as a measured loss and credited to the 120 account.

H. G. Grisham
H. G. Grisham

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S. S. Stief

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Y 6930.

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. J. A. Parsons
LOCATION K-303-8

DATE April 27, 1955

ANSWERING LETTER DATE

ATTENTION

COPY TO Mr. D. C. Brater
Mr. R. R. Frazier (2) K25RC
Mr. W. D. McCluen
Mr. R. G. Nicol
Mr. M. F. Schwenn
Mr. H. G. P. Snyder
File (H. G. Grisham)

SUBJECT K-1401 Material Release, Report No.187

KP-303, Part 104

Date of Release	January, February, March, 1955
Location of Release	K-1401
Balance Area Account No.	200
Material	UF_6
Class or Assay	"B" and "C"
Amount of Material Involved	2,988 grams uranium
Equipment	K-27, K-29, and K-31 converters
Source of Information	R. G. Nicol

Details: Known loss of calculated quantity.

During the third quarter of fiscal year 1955, a total of one K-27, two K-29, and twenty-one K-31 converters were decontaminated at K-1401. In this operation, the converters were fluorinated at high temperatures in the furnace stands for a period of two or three hours and the recovered UF_6 was vented to the atmosphere. Sufficient data were taken to calculate the recovered UF_6 for each converter. The uranium-235 was obtained by applying the proper assay to the recovery from each unit. These assays, obtained from the proper gradients, ranged from 1.23% to 5.93%. A calculated quantity of 2,988 grams uranium and 82 grams uranium-235 was vented to the atmosphere from these twenty-four converters during the quarter. This quantity of material will be shown as a known loss and properly credited to the 200 account.

H. G. Grisham
H. G. Grisham

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Approved: S. S. Stief
S. S. Stief

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